

*Child
Development*

BRECKENRIDGE
and
VINCENT

Child Development

PHYSICAL AND PSYCHOLOGICAL
GROWTH THROUGH THE
SCHOOL YEARS

By

MARIAN E. BRECKENRIDGE, M.S.

Head of the Physical Growth Department, Merrill-Palmer School

and

E. LEE VINCENT, PH.D.

Dean of the New York State College of Home Economics at Cornell
University; Formerly Psychologist, Merrill-Palmer School

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PREFACE

The main reason for studying child development is to improve the lives of children. It is our hope that this book will contribute to the well-being of children and their families. It is designed for professional students in psychology, teacher training, home economics, medicine, nursing and social work as well as for parents. It is written also in full appreciation of the fact that most college students will become parents and hence will need to understand children.

Although the title leads one to expect discussion of the school age mainly, we have included sketches of growth stages which precede this age since teachers and other workers with children of early elementary school age often encounter immature forms of behavior, which can be dealt with successfully only if the origins and early patterns of the behavior are understood.

Parents, of course, are all important to children's development, not only because they guide the child through the most formative years, but because their influence continues through a longer period of the child's life than any other. Parent-child or teacher-child relationships cannot be understood fully without a knowledge of the interplay of extra-family and extra-school influences on the child's character and attitudes.

Social workers and clinicians are likely to meet children at important crises in their lives, so that whatever they do with children carries the permanency of vividness and dramatic excitement. Even a single visit to the doctor's office or to the dentist may have a lasting effect upon a child's attitudes and feelings—favorable if the doctor or dentist understands the child and approaches him properly, unfavorable if the reverse is true. A year spent in any given school-teacher's room is sure to influence not only the child's academic learnings, but his attitudes and feelings about learning, about adult authority, about society's institutions, and about living and working with his peers. It also affects his health. Some teachers give children a fine year physically and academically, setting up a genuine impetus toward good character; others give children a bad year all around, leaving them not appreciably im-

proved academically, fatigued and nervous physically, resentful, deceitful, and socially antagonistic. It is our belief that all of these professional workers profit from an understanding of child development.

We have attempted to bring together some of the current findings and viewpoints in the rapidly advancing child development research field. We have quoted some controversial material with a view to helping students overcome a habit of reading a single article and accepting its results as final.

We would like to urge college teachers not to use this book as a text alone, but rather as a focus for vigorous class discussion of experiences and observations made by the students. The questions at the ends of chapters are suggestive of ways in which students may gather relevant material for classes. It will doubtless be impossible in most classes for all students to do all of the visiting outlined. Many teachers, however, have found it a successful plan to send out student committees, each to gather an aspect of the material and to report it to the class for general information and discussion. Every attempt should be made by the teacher to keep discussions constantly referred to scientific and published materials, thus seeing that students gain not only local color and interest but acquire a genuine background of substantial knowledge. Questions referring the student to current literature have been included in order to keep the student abreast with the rapid progress in the field of Child Development. It is also helpful to have the examinations (or at least part of them) take the form of problems assigned in advance and designed to summarize and integrate knowledge previously learned.

In order to avoid extensive footnotes, a system of numbers which refer to items in the reference bibliography at the end of the book has been employed. Thus, the continuity of the text has been maintained without sacrificing reference to substantiating and pertinent literature. The bibliographies at the ends of chapters are meant to give the student further interesting reading on the subject-matter of the chapter.

Without the work of the various Child Development Institutes and of other research personnel this book would not have been possible. We are grateful to the several readers who have carefully criticized the first edition and given help in the preparation of this revision. The W. B. Saunders Company has also given invaluable assistance in the preparation of the manuscript.

MARIAN E. BRECKENRIDGE
E. LEE VINCENT

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1. SOME GENERAL PRINCIPLES OF DEVELOPMENT

Intelligent handling of children requires a knowledge of how children grow, and of how such growth can be influenced favorably. It is based not only upon knowledge of general principles, but also upon an understanding of each child encountered: What has made him what he is? How does he compare with other children? What direction should *his* growth take?

Let us, then, in this introductory chapter, look at some of the general aspects of development. Later we shall study its stages and patterns more in detail. What does Life demand? What, therefore, must growth accomplish if the child is to meet Life adequately? What are some of the laws which govern growth? Does every child grow "according to the law"? How can we utilize these laws to know what to expect from children and how to promote their well-being? How are people trying to find out what we do not now know about growth?

WHAT GROWTH MUST ACCOMPLISH IF LIFE DEMANDS ARE TO BE MET

Life Requires that One Find and Hold a Job. Society expects every able-bodied adult to earn his way, with all that this means in physical and intellectual skills, and in ability to meet and get along with people. For many women this may not mean a remunerative position in the vocational or professional world, but a job as homemaker and mother, which tests as many abilities and skills in its own way as does competition in the vocational world. Specifically, winning and holding a job require:

1. *Health and Physical Stamina.* Physical vigor should be such as to permit regular attendance at work rather than frequent absence; it should lend "punch" to one's approach to the task in hand, should aid one to do not only what is required, but also that extra margin of activity which means promotion or, at least, security from being fired. Attractive appearance, smooth coordi-

nation in posture and movement, neat and appropriate grooming are also definite assets in job-getting and job-holding.

2. *Necessary also are emotional and nervous stability* sufficient at least to endure the strains of responsibility, the frustrations and defeats and disappointments which every job offers at some time or other. Personality characteristics which guarantee honesty, dependability, ability to take responsibility, and which make possible initiative, resourcefulness, and imagination are also essential. One of the most important of personality traits required to get on in a job is the ability to work hard when things are not particularly interesting, and especially when they are discouraging. Ability to take orders from supervisors, to get along with peers, and, when necessary, to direct others is also imperative in most types of jobs.

3. *Some Sort of Salable Skill or Ability.* It goes without saying that unless one has some skill or ability worth paying for no employer will hire one.

Personal Happiness and Social Well-Being Require the Ability to Win and Hold Friends. If the adult is to have the greatest happiness and the most effective balance of personality he must win and hold friends. This involves kindness to others, consideration for the wants and moods of others, sympathy, tolerance, and generosity, all of which are based upon an adequate control of one's own whims, desires and moods. This in turn implies the accomplishment of an adequate social development through the growing years, and the accumulation of experience with people without which no person can hope to deal adequately with the wide variety of people he must meet vocationally and socially. The acquisition of social technics and skills as well as an emotional capacity to understand and appreciate friendship are important parts of this accomplishment. Health is also a requisite here, as everywhere, to the fullest enjoyment of friendships, since one needs enough health to be an asset rather than a liability in social activities, or even in the quiet sharing of a substantial friendship. Appearance helps to win friends, although beyond the first "shoppings-about" of adolescence, other character and personality traits are probably of greater importance. A reasonable background of knowledge of interesting facts, and a varied set of interests increases the dynamic quality of personal attractiveness. A sense of humor is invaluable.

The Ability to Select, to Win, and to Hold a Mate, and to Establish a Satisfactory Family. A well-rounded personal life and the living out of one's deepest emotional potentialities hinge upon the adult's ability to select, to win, and to hold a mate,

and to take on the responsibilities of parenthood. Wise selection of a mate requires a fairly wide knowledge of members of the opposite sex, their particular traits and reactions, both as these traits are similar to and as they are different from those of one's own sex. It also requires a thorough insight into one's own self, one's own peculiarities of character make-up, both physical and psychological, a knowledge of one's own tastes, habits, attitudes and moods. Such self-knowledge is also important in all the other life adjustments, but is particularly vital in the intimate adjustments of the marriage relationship. Winning and holding the mate demand all of the social skills and technics necessary in winning and holding friends, plus a stronger control, a keener insight, a deeper emotional capacity.

A clear knowledge of what it means to be a young man as different from a young woman, of what the role of lover, husband, and father should be in courtship and in family life are all essential if a boy is to participate adequately in marriage. The same awareness of the role of woman, girl lover, wife and mother are indispensable for the girl. Each must know what may reasonably be expected of the opposite sex, and how to fit one's own needs, desires, and personality traits into the courtship and marriage picture. All of this requires long training, which takes place consciously or unconsciously throughout childhood. The understandings, attitudes, and feelings basic to successful marriage and parenthood are largely acquired from one's own parents and in one's own childhood home. To attain success exacts the fullest physical, psychological and spiritual maturity of any test of adult life.

The Ability to Live Happily with Oneself. Although it is important to learn to live with other people smoothly and happily, it is imperative to peace of mind and to effective functioning that one learn to live with oneself without too great loss of emotional energy. As the child grows he must learn to understand his assets and to use them constructively; he must discover his liabilities and, if possible, correct them; or if this is not possible, to accept them and make the best of them. A sense of one's responsibility to others, balanced by a sense of self-protection sufficient to keep one functioning at an efficient level must be developed.

The ability to accept wise authority, to bend one's will to necessary authority without loss of self-confidence or initiative requires a well-balanced experience with parental and school authority in early childhood, and with civil and ethical authority in later childhood and adolescence. The ability to live an imaginative and resourceful inner life without withdrawal from the

realities of the world must be balanced against the ability to mix happily and successfully with people without continual dependence upon social stimulation. To control emotion without stifling and repressing it; to express emotion and to utilize the driving power which it provides without impetuosity or personal disaster. These are lessons which require continued learning throughout the childhood and youth years.

A Workable Life Philosophy. In meeting each of these demands in adult life there occur griefs and failures, loss of loved persons, disappointments—the crises and the tragedies of life. There are also joys and successes, the deep satisfactions and the thrills of life. Great strength of character, fine emotional balance and a mature philosophy of life are required to meet either joy or sorrow well. To succeed without losing one's head; to fail without losing one's faith. These are the final tests of life. Most adolescents build air castles and dream dreams. To have these ideals and theories checked against the facts of adult life is a severe test of balance. To fall in love, to produce children, to lose these beloved people demands or of itself produces a substantial spiritual philosophy if the meaning of existence is not to be lost. Somewhere along the way in the growth picture children and young people, if they are to live meaningfully, must acquire a workable philosophy of life. This involves not only ability to withstand failure and grief and a capacity to absorb success satisfactorily; it involves also a vision of humanity as a whole, a sense of responsibility to the total social good, since without this the individual could not live comfortably in a social organization, for society itself could not exist. Somehow the people who rear and influence children must make certain that they arrive at adulthood with constructive social attitudes. Only so can delinquency and crime be avoided; only so can careless traffic accidents be curtailed; selfish aggrandizement of property be limited; wars stopped; in other words, only through such attitudes can the "good life" be achieved.

Essentials Valuable to All the Tests of Life. A review of these tests of life should make us aware of certain essentials which are valuable to all of them:

1. Vigorous health, or at least maximum efficiency of the body one inherited.
2. Attractive appearance and manner of meeting people.
3. Efficient use of the intellect one inherited.
4. A desirable body of usable knowledge, and a capable set of habits and skills.

5. A trustworthy character.
6. A dependable philosophy of life.

These are minimum for secure and full living, for happiness and success for the individual, and for the continued progress of society.

WHAT ARE SOME OF THE LAWS WHICH GOVERN GROWTH?

Growth Is Both Quantitative and Qualitative. By the term "growth"* we are implying two aspects of change which take place. These two aspects are not interchangeable but, nevertheless, are inseparable. It is said that a child "grows" and "grows up." He "grows" in size; he "grows up" or matures in structure and function. In maturing or developing he passes through successive changes, which are universal indicators of his progress. These indicators are called maturity indicators. Ultimately, as he has passed through each successive stage of growth he reaches the end point of this process, which is called maturity.†

There are many illustrations of this maturing or "growing up" process which accompanies growth. The baby's digestive tract, for example, not only grows in size, but also changes in structure. This permits digestion of more complex foods and increases its efficiency in converting foods into simpler forms which the body can use. The child, therefore, can widen his experiences with foods as he grows, and this will in turn contribute to his physical well-being and his social development. The structure and functional efficiency of many of the internal organs change with development.

Younger children are not only smaller than older ones; they are also simpler organisms, both physically and psychologically. The young baby, for example, learns motor controls over his larger muscles first. Only gradually can he master such fine coordinations as are required for reading and writing. Reasoning too, in children of preschool age is, of necessity, relatively simple and uncomplicated. Only later, when his nervous system has developed more complex organization and when accumulated experience exists as a basis, can the child attempt more complex forms of reasoning.

Emotions are simpler, the younger the child. Babies feel things "with all of themselves," being completely joyous or completely

* For an extensive discussion of the term growth see Meredith.⁶⁹⁴

† Complete maturity does not arrive full blown at one time. In some aspects of life maturity arrives at a fairly early age; in others, much later.

miserable about rather simple things. Differentiation of structure and accumulation of experience produce more and more complex emotional reactions to more and more complicated situations. If we permit children to go on expressing "full-blast" emotions about simple, babyish things instead of growing into greater controls and more "civilized" responses to more "grown up" situations, we are not helping them to live up to their growth potentialities.

Some people, failing to understand this double aspect of growth, do not realize that children's intellectual capacity and character traits are essentially different from those of adults. We cannot without disaster expect the motor skills, intellectual complexities or character insights from children that we expect from adults, or from younger children that we expect from older children. They have simply not "grown up," any more than they have "grown."

This inner "growing up" is discussed later under the effect of maturation upon learning. We have many experiments to prove that children cannot learn what they are not ready through growth or maturity to learn.

Growth Is a Continuous and Orderly Process. Growth is a continuous process which moves with an urgency supplied from deep inner sources. We may well ask how the relatively helpless, unskilled, uncontrolled infant finally reaches a level of maturity at which he can meet the tests of life just discussed. The answer is that he does it by an orderly sequence of acquisitions. He will grow because of a strong impulse to grow which is inherent in the organism; and his growth will be orderly—the product of his innate gifts of inheritance, modified for good or for bad by his experience.

This should comfort us, since we realize that we do not need to make him grow. He will do that anyway. Only severe neglect or abuse will seriously disrupt his growth. Because growth is continuous we must realize that what happens at one stage carries over into and influences the next and ensuing stages.

Even the seemingly sudden spurts in tempo of growth lead into and grow out of quieter, less dramatic periods. It may be possible that in the quieter periods the child is mobilizing his forces for ensuing spurts. Parents rightly celebrate the appearance of baby's first tooth, the first independent step in walking, or the first word spoken, the first evidence of reading ability, or the first "date" with a girl (or boy) in adolescence. Each of these noticeable changes is a sort of graduation from the school of preliminary developments. The first step in walking cannot be taken until a

long chain of learnings in bodily control has preceded (see Chapter 8). This is true also of the first word spoken, the first evidence of successful adjustment to other children, or any other conspicuous event in growth. Each of them is a milestone which marks progress in a long process.

Fortunately for students of child development these milestones appear in an orderly sequence. It is not difficult to chart the steps by which growth takes place or to describe the patterns which it follows. No child, for example, learns to walk without having first learned to stand, nor does any child speak clearly before he has passed through the babble stage of syllables in language. As Gesell³⁷⁸ so delightfully puts it: Each child "sits before he stands; he babbles before he talks; he fabricates before he tells the truth; he draws a circle before he draws a square; he is selfish before he is altruistic; he is dependent on others before he achieves dependence on self." For the great mass of children, these patterns or stages of learning follow each other in so fixed a sequence, and parallel certain birthdays so consistently that standards of what to expect at each age have been set up.

The Tempo of Growth Is Not Even. These sequences of development do not move along in time at a steady pace. Maturity indicators do not appear at regular intervals. There are periods of accelerated growth and periods of decelerated growth. During infancy and the early preschool years growth moves swiftly and the maturity indicators of each of the various aspects of growth appears hard on the heels of its predecessors. (During the later preschool and school years the rate of growth slackens.) But this does not mean that significant changes are not taking place. (Before puberty certain phases of growth become accelerated before they taper off to the adult level.) Figure 1 shows the average weight curve which demonstrates this rapid growth in infancy, the tapering off of growth during the elementary school years and a less intense spurt before puberty. This pattern, with the exception of the pubescent spurt, would be as evident in typical intelligence growth curves. ✓

Different Aspects of Growth Develop at Different Rates. Not all aspects of growth develop at the same rate at the same time; that is, they do not proceed along an even front. For example, parents often worry because (children characteristically speak three to five words at twelve months of age, but in the next three or four months they seldom acquire new words and often even forget the ones they knew.) Language growth slows up for the time being because the child's physical energy and enthusiasm

for learning is thoroughly occupied with the thrills of upright locomotion. Development in general bodily skill spurts ahead at this time, apparently leaving little growth energy (if we may use such a phrase) for language development. Similarly, school work sometimes suffers a slump while children's growth energy is being expended on the rapid increase in height and weight characteristic of pubescence. It is important to know which aspects of growth can be expected to absorb the child's capacity for growth at any given time of his life. We do not now in our public

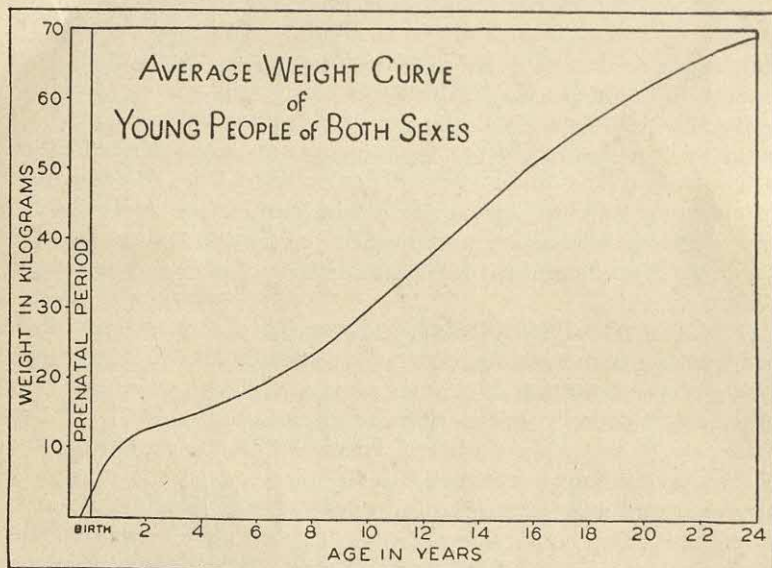


Fig. 1. Theoretical average weight curve in healthy human subjects from early fetal to adult life. The weight curves of individual children, though more irregular, closely approximate the levels and trend shown here. (Redrawn from Wetzel, "Journal of Pediatrics," V4, from Chenoweth and Selkirk: School Health Problems, F. S. Crofts and Co.)

schools, for example, make provision for the fact that physical development proceeds rapidly during pubescence. Academic loads are stepped up rather than reduced in junior and senior high school, extracurricular activities, home work, and rapidly increasing social interests frequently replace the extra hours of sleep which rapid physical growth requires. It is slight wonder that we have in this country so high a tuberculosis rate among adolescent children.

Figure 2 shows how some of the different parts of the body develop at different rates at given ages. We have no comparable

charts to show tempo of growth in intellect and character. We can see that the nervous system develops rapidly in earlier years. This parallels rapid acquisition of control over the body, and rapid expansion of intellectual capacities. (Children probably learn more new things in the first five years of life than in all the rest of their lives. On the other hand, we can see that the most rapid development of the genital system occurs during pubescence. Certain definite social interests and emotional capacities develop concurrently or soon afterward. ✓

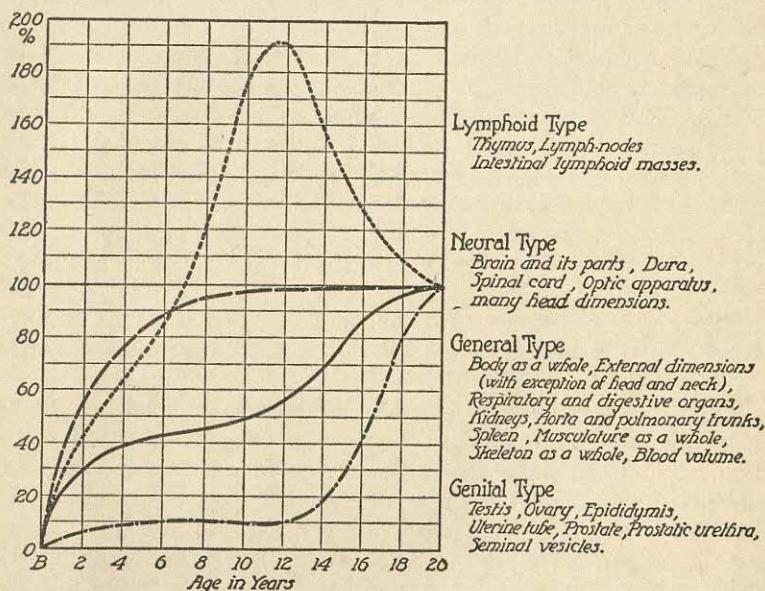


Fig. 2. A graph showing the major types of postnatal growth of the various parts and organs of the body. The several curves are drawn to a common scale by computing their values at successive ages in terms of their total postnatal increments (to twenty years). (Scammon in Harris: *The Measurement of Man*, 1930, The University of Minnesota Press.)

Both Rate and Pattern of Growth Can Be Modified by Conditions Within and Without the Body. Although the impulse to grow is strong through innate force and even though patterns are fairly definite for all children, both rate and exact pattern can be changed when the child's environment is not fulfilling the fundamental needs of the child. Nutrition, activity, rest, psychological challenge, opportunity to learn, security in affection, an adequate and understanding discipline and many other circumstances are of great importance in determining how

fast and in what perfection of pattern any given child will grow. Inadequate nutrition, forced upon Europe's children following World War I, for example, produced physical and psychological damage which could not be entirely compensated for in later years of growth. Deprivations in World War II have been even more severe with lack of food, loss of parents, destruction of home and communities, and separations of families. It can be expected that many of the physical and psychological scars we see in children today will become permanent. There are also dramatic evidences of modification in the changes in growth which result from the administration of thyroid to cretins (children who are dwarfed because of inadequate thyroid secretion). This will be discussed in some detail in chapter II. The disease called rickets, which results from deficiency in diet or sunshine or both, may leave permanent evidences on the body in the form of flat chest or deformed pelvis, and crooked backs, all of which interfere with the efficient functioning of the body. Similarly, deficiencies in affection and security in childhood may leave permanent scars on the personality in the form of explosive tempers, "grudges," fears, and other severe handicaps to the adequate functioning of personality. Poor methods of teaching reading or other primary school subjects may leave a child with a resistance to all academic work.

On the other hand, if a child's inheritance is good, and if he has adequate diet, security in love, good teaching and other favorable circumstances he will flourish in his growth, and will develop in excellent health, a keen intellect, a well-balanced and likable personality. We cannot, however, set up "ideal" environments, even if we wished to do so. Human nature is weak; germs exist in abundance; accidents will happen. Fortunately, the body and the personality have great resiliency. They can make up for temporary retardations, provided the disturbing factors are removed in time or the accidental damage is not too devastating. We must, in fact, consciously avoid an attempt to set up a too protected environment, since if the child is reared in early years in an aseptic (germ free) atmosphere he develops no immunity to life's ordinary germs; if he is too loved and coddled he becomes what is known as a spoiled child; if he struggles for nothing he gains no moral strength.

Each Child Grows in His Own Unique Way. Some children are tall and some short, some slender, others stocky. Some are physically strong, others are weak; some are intellectually keen, others are dull. There are the energetic and the phlegmatic, the agile and the awkward, the courageous and the fearful, the out-

going and the ingoing in personality. Almost every trait measured by any scale scatters individuals along a distribution known as "the normal probability curve," or "the range of normal probability." Figures 3 and 4 show the idea of normal distribution of traits. We can see from this that there is a midpoint, or theoretical average. It is quite possible that no given person in any group

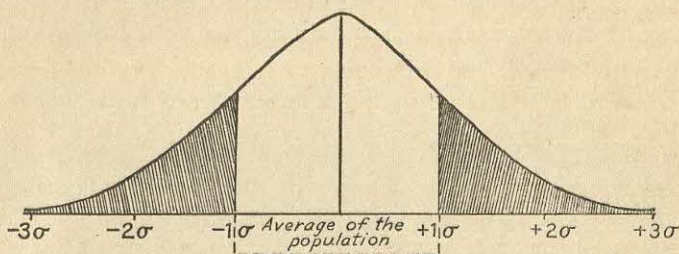


Fig. 3. Normal probability curve. Range within which the great mass of "normal" people lie. Shaded areas represent extremes in either direction.

would measure exactly at the theoretical average for his group in any given trait. The great mass of "average" people spread over a certain span of measurement called "the normal range," within which development or growth may be considered desirable. The extremes may or may not be undesirable. In weight measurements, for example, excessive overweight or underweight is con-

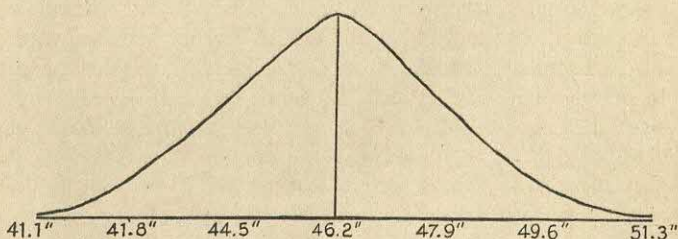


Fig. 4. Normal probability curve of height for six-year-old boys. (Average and standard deviation taken from Simmons, K., and Todd, T. W., "Growth of Well Children: Analysis of Stature and Weight 3 months to 13 years." *Growth*, 2. No. 2.)

sidered detrimental to health at any age. On the other hand, on the "mental age" scale people are usually desirous of belonging in the most extreme upper brackets of accomplishment where one is referred to as in the "genius" class. There is some discussion in the literature, however, as to whether even in this trait it is not possible to rank too far from the average of the population to be understood easily by others or happily adjusted to them.

An example of how widely these differences vary within the same age range can be found in Meredith's⁶⁹¹ study of eighteen anthropometric measurements on Iowa City boys between birth and eighteen years in whom he noted wide individual differences. The lightest boy at eighteen years was no heavier than the heaviest boy at eight years. The lightest boy at eight years weighed hardly as much as the heaviest two-year-old. These, of course, represent extremes but are warnings to us in using chronological age scales too rigidly in classifying children.

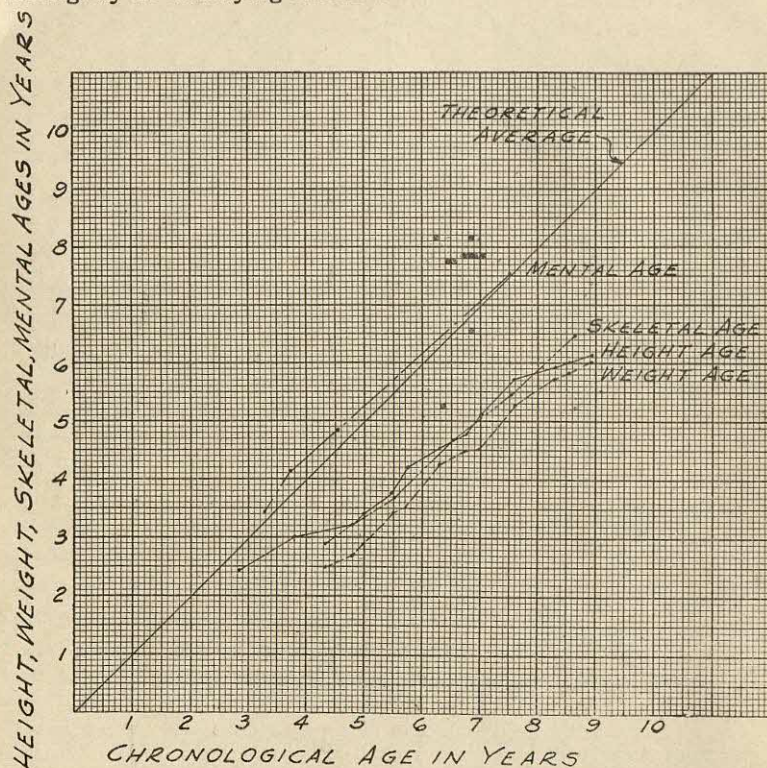


Fig. 5. Growth curves of a slow-growing boy.

While all children pass through the sequence of maturity stages, some may omit some of the intermediate steps. For example, some children walk upright without creeping or crawling, even though most children crawl, creep, walk in sequence. Then again, a sequence may be disturbed because of a structural defect. Such may be the case of deaf children who sometimes learn to read and write before they learn to speak or understand spoken language, this being a reversal of the usual order of development.

Some children also differ in their rate of development, going through the sequential steps as expected but at a slower or faster rate than average children. Thus there are *slow growers* and *fast growers* (see Figures 5 and 6).

There are also definite *differences between boys and girls*. Figure 7, representing growth in weight of boys and girls from birth

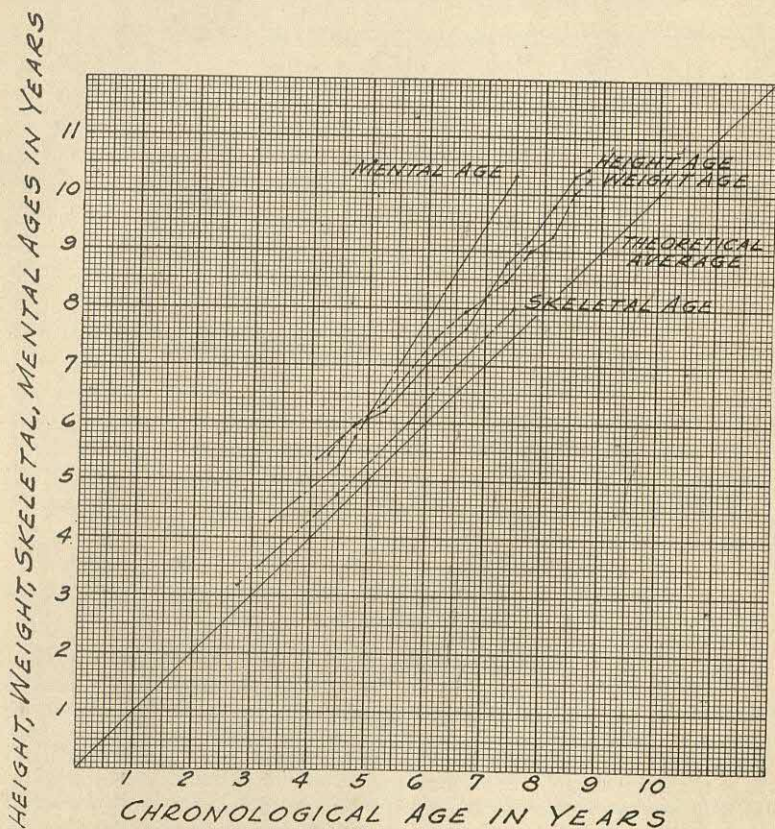


Fig. 6. Growth curves of a fast-growing boy.

to eighteen years shows that boys exceed girls in weight throughout growth with the exception of one period between twelve and fifteen years when girls weigh more than boys. This temporary superiority of girls is due to the fact that girls mature earlier than boys and, therefore, pass through the pubescent spurt of growth earlier than boys. Within each sex, there is considerable difference in the ages at which children arrive at maturity.

There seems to be very little difference between boys and girls in general intellectual capacity, but there are certain definite differences in interests and behavior, as we shall see later. Whether these differences in interests and behavior are innate or a product of the way we rear children is not clear, but much depends upon which interest or which trait is under discussion.

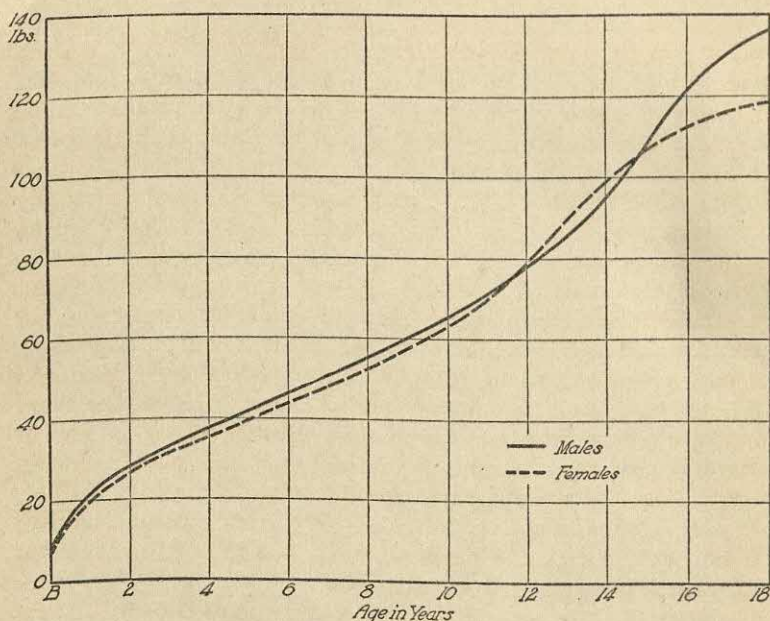


Fig. 7. Curves showing the growth in weight of the body between birth and eighteen years. These curves are plotted to the figures contained in the average height and weight tables of Emerson and Manny. The values for these tables are based upon the data of Holt (revised figures) for American infants and on the data of Bowditch, Peckham, Porter and others for older American children. In the Emerson-Manny tables the values after infancy have been "set forward" one-half year in an effort to adjust them to recent measurements of American children. Males, solid line. Females, broken line. (Scammon in Harris: *The Measurement of Man*, 1930, University of Minnesota Press.)

Goodenough and Maurer³⁹⁸ after a comparison of a number of types of tests of preschool children and test performances at later years found that in nearly all instances girls' scores showed a more consistent correlation between early and later tests than boys' scores. Thus girls showed a reliable tendency toward greater stabilization of performance on tests than boys in the early years. They discuss this by saying:

Although it is possible that sex difference represents an earlier stabilization of mental level in females than in males it is probably more reasonable to assume that better cooperation and greater docility in the test situations—characteristic in which a number of girls are likely to exceed boys—provide sufficient explanation for the differences found. Nevertheless, the other possibility is by no means excluded. Because of the theoretical significance of the problem further investigation is desirable.

We must understand these unique aspects of each individual child's growth if we are to treat children intelligently. A tall, slender child does not put on weight at the same rate, nor does he weigh as much for his height, as does a stocky child. Some parents create unnecessary feeding problems in their attempt to achieve "standard" weight gains. Certain intellectually fast growing children have the physical stamina and social maturity to enter school at five and one-half years of age. Other children of the same chronological and mental ages will be quite unable physically or socially to stand the competition of other first graders. Some children seem "slow to catch on" in school for several years, yet prove later to be excellent students. Forcing the pace of growth at any stage will not produce good results in the long run, and may incur serious damage along the way. Forcing children into any pattern of growth which is not in harmony with their natural potentialities is likely to result in tragedy both for the child and for the misguided adult. Father, for example, should not try to make "go getters" out of sensitive, artistic boys; nor should Susie be compelled to try to make Phi Beta Kappa because her older sister did.

Growth Is Complex. All of Its Aspects Are Closely Inter-related. The many failures in attempting to discover simple causal relationships in development speak for the fact that growth is an extremely complex process, the various aspects of which are intimately interrelated. It is impossible to understand the physical child without understanding him at the same time as a child who thinks and has feelings. It is likewise impossible to understand his mental development without a real knowledge of his physical body and its needs. There is a close relationship, for example, between his total adjustment to school and his emotions, his physical health and his intellectual adequacy. Such simple things as fatigue or hunger may influence his behavior. An emotional disturbance may contribute to difficulties in eating or sleeping. An illness may be an incubation period for a behavior problem. A physical defect may have been the starting point for certain attitudes and social adjustments. It is important to an adolescent not to be too tall, too short or obese. It makes a difference in the

total picture of the child whether he is energetic or phlegmatic. The posture of a child may express his physical well-being or the reverse, and also may reveal something of his attitudes. An understanding of this principle of the interrelatedness of growth is one of the major themes of this book. In order to focus attention upon it we are devoting the following section to a more complete discussion of it.

ALL ASPECTS OF GROWTH ARE INTERRELATED

The Child as a Whole. Clear understanding of what is meant by the statement that a child reacts as a total being is essential if we are truly to educate or modify any part of him. His intellect is related to his physical well-being; his physical health is sharply affected by his emotions; his emotions are influenced by school success or failure, by his physical health and by his intellectual adequacy. His growth, physical, intellectual and social, is a product of his family history, his personal history, his current satisfactions and strains. His daily schedule affects all phases of his growth; and, in turn, the pattern and speed of his growth affect his reaction to his daily schedule. What he accomplishes in school, in play or in any other part of his living, is deeply and continuously affected by his physical health, by his intellectual adequacy, by his interest in his work or play, and by his emotional freedom to attend to it.

If, for example, the school fails to appreciate what has happened to any given child before he got where he is, and if it refuses to take into account the experiences of the child's current out-of-school life, it cannot hope to contribute constructively to his intellectual, much less to his total, growth.

Mental Age Is an Inadequate Basis for Determining School Placement. Taken from another angle, we can see the importance of knowing more about children than their mental ages as an index of school success. Careful studies of school achievement in relation to growth in general have been in progress for some years at the University of Michigan. In these studies, Olson and his co-workers^{750, 753, 756, 758} have analyzed school progress,* as measured by achievement tests (and computed as achievement age), in relation to various aspects of growth progress, such as height age, weight age, dental age, carpal age computed from x-rays of the hand and wrist, grip age measured by a dynamom-

* A valuable discussion of the relation of school achievement to general development can be found in Millard⁷⁰⁴ who participated in these studies. He says: "The reading curve will naturally follow the child's maturity curve."

eter to test strength of grip, and mental age. They have found that reading age, or arithmetic age, or any subject-matter age is not as closely correlated with mental age or any other single growth age as it is with a composite of growth ages. The indication, for example, is that educational achievement sticks more closely to the "center of gravity" of growth or "organismic" age* than it does to the mental age. This is significant to the educator who has, for some years, made whatever academic adjustments he has made at all in terms of mental age.† Teachers frequently complain that a child is not "working up to capacity," meaning that he is not working up to the limits of his "mental" age. Few schools realize that most children are working up to their "total" capacity, or as Olson calls it, their "functioning capacity." Only exceedingly rare schools make any attempt to adapt school programs to individual children in the light of all-round physical and social, as well as mental development.

Behavior Problems Are Often Related to Patterns of Growth. We must realize that growth itself creates certain situations which lead to behavior problems. Children who have patterns of fast, of slow, or of irregular growth often present school problems in association with this. A. S. (see Figure 9) is a case of this kind. At eight years and five months, A. S. was

* According to the Olson method measurements are converted by the use of norms to ages and plotted against chronological age. The organismic age is the arithmetical average of as many of the ages (height, weight, dental, carpal or skeletal, grip, mental, reading, etc.) as are available. It is significant only if it includes a substantial number of the physical measurements of which the skeletal age is of considerable importance. It is useful, in other words, only if it is made up of physical measurements as well as mental and achievement measurements. Social and personality "ages" will be an important contribution to these studies as soon as we have learned how to measure them with reasonable accuracy.^{363, 363}

Methods of computing these ages and of calculating the average are described in Olson and Hughes.⁷⁵⁹ Methods for assessing skeletal maturation of the hand are described in Flory³¹⁹ and Todd.¹⁰⁰⁸

The degree of precision with which one can use this method is to be considered since (1) there may be some question of the legitimacy of deriving averages from diverse functions and (2) the norms used may not be comparable since they were obtained from different groups of children and by using instruments of widely differing reliability.

Another method of comparing various aspects of growth is by the use of standard scores. This technic is followed at Fels Institute⁹³⁴ (Composite Sheet) and in the California Adolescent Growth Study.⁵⁵²

† Whenever special retarded classes or enrichment classes exist, children are largely classified for them by mental tests. Sometimes school achievement tests are a factor in deciding where to place a child in special or enriched classes. Some schools have classes designed to fit special physical defects like classes for blind, deaf and crippled children, or "fresh air" rooms.

as tall as the average twelve-year-old girl, as heavy as the average eleven-year-old⁷⁵⁹ and had a mental age of twelve years two months. In one year and three months she had gained $3\frac{1}{4}$ inches and $10\frac{1}{8}$ pounds. Her feet had grown so rapidly that she wore an adult size 6 shoe at the end of the year, in contrast to a size thirteen (children's size) at the beginning. During the year she

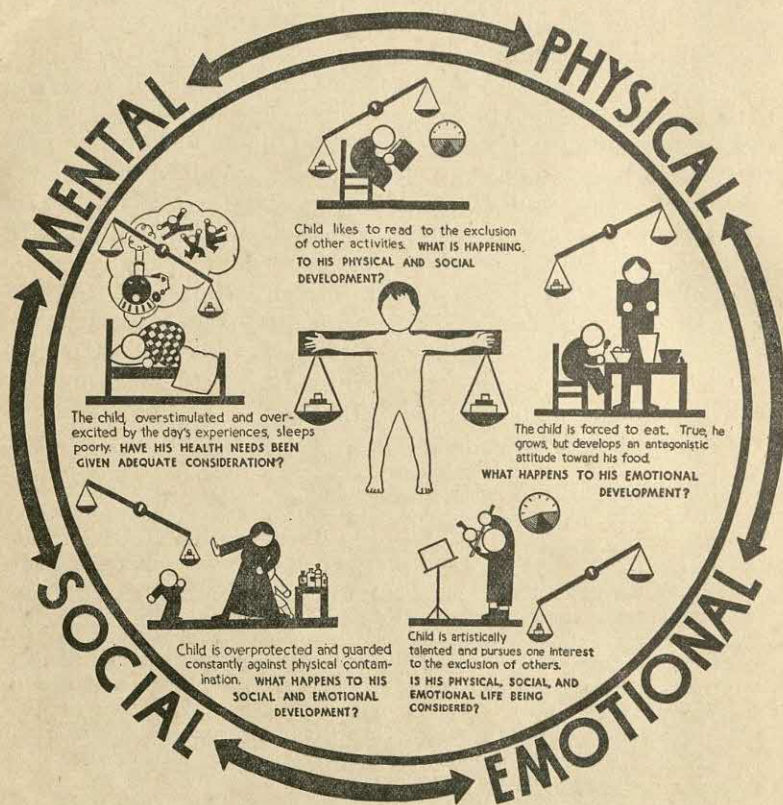


Fig. 8. The interrelatedness of a child's life.

had complained of being tired and it had been necessary for her to miss about two days of school each month in order to relieve this fatigue. In addition, a certain degree of restlessness was indicative of fatigue. This was noticed when she visited the Child Development Laboratory for her yearly measurements of growth. At that time she demonstrated an inability to sit or stand quietly. In school she was reported by her teacher as a disciplinary

problem and lacking in initiative. The conflict between teacher and child was alleviated when it was discovered that her seat and desk were not adjusted to her size. It had been necessary for the child to place her feet in the aisle in order to have any degree of comfort. With the adjustment of the chair and desk her behavior improved. Out of school, she generally selected children of her

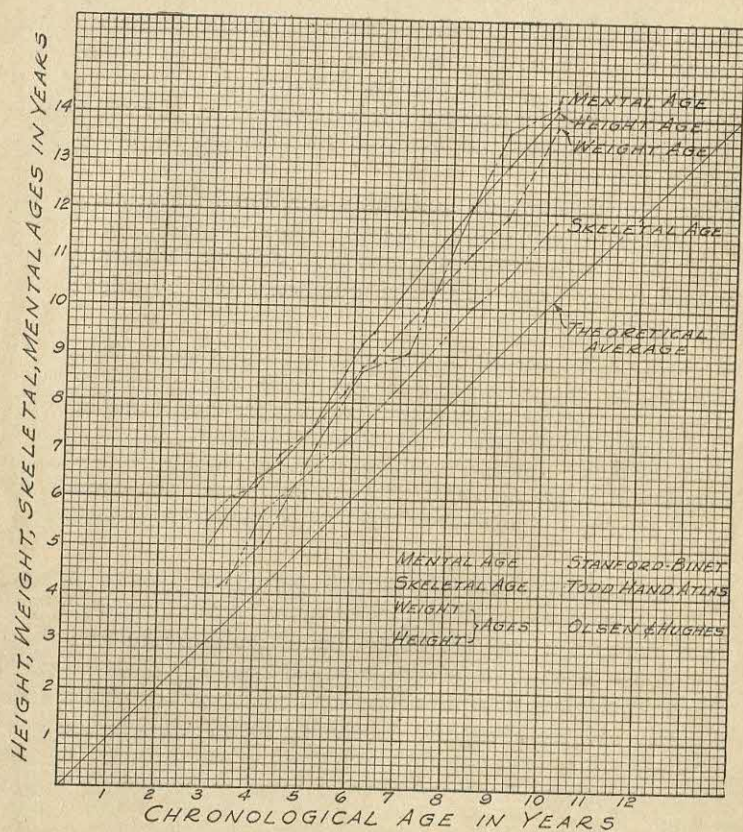


Fig. 9. Growth curves of A. S.

own size as playmates which meant she was playing with children two to four years older than she was. When the pressure of keeping up with children two years or more older became too great she selected children of her own chronological age. Thus she had two sets of playmates which she alternated according to her immediate needs, playing with the older children when rested, with the younger ones when tired. In this way, she had solved

her own problem of play, but, of course, could not solve her own problem in school.

Such a child illustrates the fact that children use their energy for two purposes: (1) for activity, or the daily program of work and play, and (2) for growth. When energy is being utilized rapidly for growth, there is little left for activity, and the child shows signs of fatigue which are relieved only when adequate change is made in his schedule to relieve him temporarily of some of the demands which he is, at other times in his life, able to meet. We see in the case of A. S. also that the inability of elementary school children to sit still for long periods is a by-product of rapid growth of the larger muscles, complicated by slowness of learning to inhibit movement.

When growth slows up noticeably emotional disturbances and social maladjustments may appear. Olson reports, in Barker et al.,⁵⁴ that such association has been observed clinically. The observation has been confirmed quantitatively by Mecham.⁶⁸² Olson reports:

Research on the association of growth and social and emotional disturbances is not at a point where one can readily ascribe causes or decide with certainty whether faulty growth produces the disturbance in feeling and behavior or whether environmental factors and emotional disturbances produce the faulty growth. Probably neither can be called antecedent or consequent. It is probable that both are interrelated and circular and practical programs of treatment had best be pluralistic in methods of attack.⁵⁴

Another so-called problem of this period of growth is adolescent awkwardness which appears partly because rapid physical growth requires a new set of eye-hand, hand-mouth and other correlations commensurate with enlarged bodies,³⁴¹ partly because of the physiologic instabilities (organic imbalances) of adolescence, and partly because of rapidly developing social self-consciousness. Adults are not always helpful to children at these times, usually because of lack of understanding of what is happening within the child.

Children's Programs Must be Adjusted to Growth Patterns if Behavior Problems and Growth Retardations Are to be Avoided. We need to consider ways of adapting school work and social programs to the growth needs and interests of the two sexes as well as to the needs and interests of individual children. Boys reach puberty, on the average, about two years later than girls. As we shall see in more detail later (Chapter 7) the average girl reaches puberty in at least her thirteenth

or fourteenth year when she is in the seventh or eighth grade. The average boy in the seventh or eighth grade is still at least one year from puberty, his average grade placement at puberty being the ninth grade. In other words, in the eighth grade most girls have arrived at puberty, whereas most boys have not. Our school curriculum makes no academic differentiation at this point. The social differentiation tugs relentlessly off on its own, impelled by the strongly-felt needs of the children themselves but seldom consciously aided by school personnel, often, in fact, stubbornly resisted by school authorities.

An Example of How One Aspect of Growth Is Influenced by Others, and in Turn, Influences Others. Something of the nature of the interrelatedness of aspects of growth may be seen in the case of Child A, a girl thirteen years old, in whom, for the sake of illustration, we have taken a single trait like poor muscle tone and attempted to trace, on the one hand, the factors which may have contributed to the development of poor tone and, on the other hand, the factors which may have grown out of the poor muscle tone. In Figure 10 we see that such factors as poor eyesight, early illness, insufficient milk, parental attitudes, and other factors may have all contributed to produce poor muscle tone in this child. In turn, the poor muscle tone, combined with parental emphasis upon fear of illness and with a high intelligence and creative imagination in the child, may have been a contributing factor in a whole chain of events. Her unpopularity with adults and children, for example, was enhanced by her physical awkwardness and unattractiveness which might be traced to poor posture and poor motor coordination of large muscles. Compensation for this grew out of the high intelligence and general physical laziness, and this child resorted to "tall tales" to impress her contemporaries, and excessive talkativeness as a means of obtaining adult attention. Here, a set of circumstances produced unpopularity with both children and adults. Well-rounded records on any child will, if carefully studied, reveal equally clear patterns of interrelationship between the various aspects of a child's life. Any other focus, such as school success, or reading aptitudes would, for this child, have produced an equally clear set of interrelations between physical traits, physical history, intellectual capacity, parental attitudes, method of spending time outside of school, and so on.

Further illustration of interrelatedness of physical and psychological factors is illustrated by contrasting Child A cited above with Child B. Both are girls of the same chronological age. In

nursery school both had noticeably poor posture, B's being even poorer than A's. Both had high intelligence quotients (around 130); both came from professional homes in good neighborhoods. Yet, at thirteen years of age, A's posture had failed to improve, whereas B's had improved almost to the point of perfection. A, as we have seen above, had no pattern at home for vigorous play; everything conspired to encourage intellectual satisfactions rather than the satisfactions which come from physical activity. Fears discouraged any natural bent she may have had toward active physical play. In contrast to this, B's family greatly enjoyed active physical play, often going on skiing or coasting parties together, sharing enthusiasm about a variety of sports. As early as the age of five, B had been encouraged by her father to roller skate, turn cart wheels, do bar and ring gymnastic "stunts" and was finding keen pleasure in her successes in this field. Her muscle tone and motor skills improved steadily. Because she was so skilled at games she was in great demand socially during the gang years. Success led to continued practice; continued practice led to success. She became the swimming and diving champion of her school and, before leaving the elementary school, won the school posture prize, while A's cycle of development had led to physical awkwardness and social unpopularity, with all the self-conscious interferences with normal school and social functioning which this implies. When B arrived at adolescence, she was well-adjusted and popular. A, on the other hand, struggled self-consciously to acquire passable social technics and skills. Fortunately, with her high intelligence and the help of the child development center, she eventually succeeded fairly well.

Thus we see two children whose social development during the elementary and junior high school years was quite different. Both constitution and environmental factors contributed to this. No amount of "counseling" or "teaching" could have changed A into B. Nor could any effort on the part of the school have changed A's family into B's family. However, both school and child development center were able to help A through the difficult years of social maladjustment so that when the social awareness of early adolescent years made her really want to change, she could do so without the handicap of a deep-rooted sense of failure.

Personal and Social Adjustments Reflect the Dynamics of Growth. What happens to children as they grow is reflected in their social adjustment. Any child has both assets and liabilities. For some the assets loom large; for others the liabilities tend to conceal the assets. The same liability may be a mountain for one child and a mole hill for another. The mole hill may turn

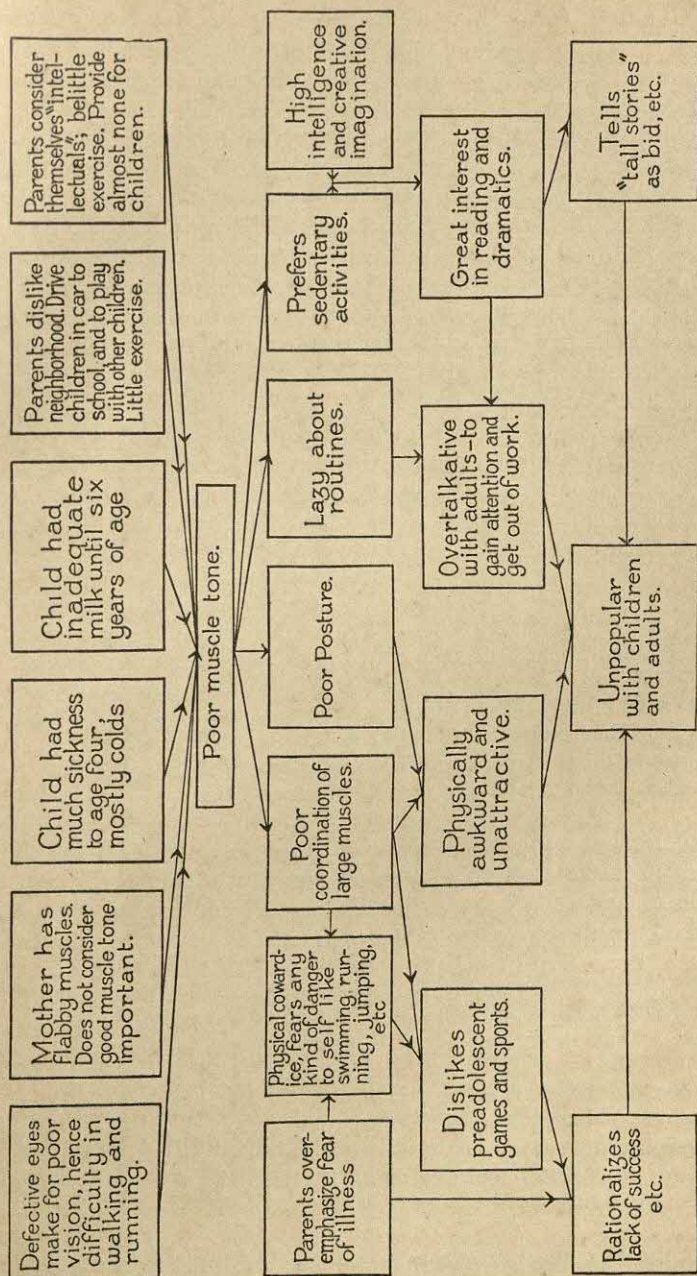


Fig. 10. Interrelationship between such factors as poor eyesight, inadequate milk, frequent early childhood illnesses, parental attitude, lack of incentive for exercise, and muscle tone. This, in turn, combined with parental attitudes toward health and with a high intelligence and creative imagination leads to lack of physical skills, to compensations and to rationalizations for lack of social success.

into a mountain later or vice versa. As we have seen in children A and B, the constellation of factors, their intensity, and the attitude of the family will all have their effect on how the child feels or behaves.

The child whose "physical development is retarded lacks that biologic slate on which the experience of his years should be registered."¹⁰¹² He lacks the maturity physically (including neurologically) to utilize certain levels of experience common to children of his given chronological age. Such a child looks young. Smallness of stature and immaturity of his tissues may well offer a handicap in his activities with his peers. His desires and his ambitions may far exceed his physical capacity. Certainly physical limitations restrict achievement and thereby offer hazards to a happy, satisfying life. Todd described a girl who at nineteen years of age had reached the skeletal development usually attained at thirteen years. In addition to this, the texture of her bones showed a far lighter mineralization than was noted in a thirteen-year-old girl whose skeletal development was in keeping with her chronological age. He says:

This girl appears well; she is able to play tennis, though not more than one set at a time; she does volunteer work in a hospital; she is capable within her limits, though not clever, and is socially acceptable. But her day must be set to a moderate pace and even more moderate achievement to avoid inevitable fatigue and discouragement. She is pleasant and attractive but lacks the exuberance and zest and sparkle which a girl of her age longs to possess . . . she is constitutionally deficient, easily fatigued, subject to depression, low in resistance and poor in resilience.¹⁰¹⁰

That *personal adjustment may be a resultant of a great variety of forces* in a child's life is again demonstrated in the case of John S., one of the boys studied for seven years by Jones⁵⁴⁷ of California. At eleven years John was described as a

. . . rather slim boy with tousled dark hair, a good-natured expression.

The other boys appeared to like him well enough; however, he was the odd man, without a partner. He was inexpert and a little awkward in games with balls, horse shoes, etc.—like an adult who had not played for a long time. He did not seem to mind this—was a little apologetic and a little amused. As a matter of fact, he was quite at home in the Institute—drawing seems to be one of his special abilities, so he enjoyed himself. He never tried to dominate and yet did not submit to bossiness, resisting interference in a firm, good-natured sort of way. . . .⁵⁴⁷

His classmates rated him average in such traits as happy, leader, masculine, enthusiastic, popular and grown-up. He had the repu-

tation of being inactive in games, afraid to take a chance and avoiding fighting. In no way was he outstanding.

In the next few years John lost status with his group and the stresses and strains became apparent in his behavior until at fifteen years, in the ninth grade, these stresses reached the maximum effect. At this time he was at a low point in popularity, initiative and good-naturedness and at a high point in evidences of anxiety, show-off behavior and affection. After fifteen years he began to improve so that by the time he had become a high school senior he had made considerable progress toward better personal adjustment and more mature social attitudes.

The next year in college he

... was rated by his college advisor as somewhat quiet, shy and unexpressive, but was given markedly favorable ratings in other areas: as having a quick comprehension and strong, well-developed intellectual interests; as being unaffected, independent and showing initiative, and as having a 'pleasing personality.' ⁶⁴⁷

Why did John have such ups and downs? There is no simple explanation but one involving the interplay of many factors.

John lacked robust health from his early years and throughout his adolescence this lack of vitality was a handicap in his relationships with his teachers and even more with his classmates in that he had a limited amount of energy to expend in his work and play. He also was slower in maturing than most of his classmates. Around the ages of fourteen and fifteen years he was smaller in size and more immature than the others. He was a "little boy" among adolescents who had had their growth spurt and greater maturing of physical abilities and social interests. By fifteen years he began his adolescent "spurt" and the accompanying maturing of his body. He caught up with the others in size, in primary and secondary sex characteristics and in the improvement of certain physiological functions. The delayed maturing could be expected to have some effect on behavior since it can lead to loss of status with others and to anxiety expressed in the question, "Am I normal?"

He had an added handicap in his physique which varied considerably from that of his more vigorous masculine classmates. His build lacked harmony in that the upper of his body, consisting of arms, shoulders and chest, was weak and fragile in contrast to a fairly normal development of his lower trunk and legs. No doubt the awareness of this difference made him self-conscious in his relations with his social group. In spite of this, he did not withdraw completely from his peers but, in fact, sought company although in an extremely awkward way.

The environmental conditions under which John grew up may have in part strengthened the impact of these physical factors. John was a child of the depression. The effect of lack of adequate income was indicated in countless ways—stretching money for food, little margin for clothing, limited opportunities for recreation such as movies or trips that would widen contacts with the community, and increasing home chores and household routines. At the same time John's mother was overprotective and demanding even during his adolescence. So during his adolescence he was having personal troubles both at home and at school.

He did not have the skills* that would lead to popularity, nor was he able to compensate for them with other favorable skills. He had no special gift of intelligence, no special insight into his problem, and little help from parents and teachers in recognizing and solving his personal problems. His response to his lowered status in his group was not to withdraw but to assert himself more strongly. While he took no part in games he displayed an increased restlessness and became more talkative and attention-seeking. He evidently was not less friendly, but was immature and inept in his use of social technics.

John's personal difficulties are the result of many factors. To be sure, his delayed maturity accentuated his problems. It is noted that his lowest point in social relationships was at the time when physical differences were most marked between himself and his associates. John's own reaction depended, however, upon the combination of traits that resulted from the interplay of his heredity and environment. Another boy might react differently.⁵⁵¹

John's improvement can be attributed, therefore, to changes within himself as he struggled to catch up with the group, and to changes in the group as their values and standards of achievement more nearly approached the aspirations that John has always held important.

The author completes John's story with the following:

So marked an upturn in John's personal fortunes is evidence not only of the toughness of the human organism but also of the slow, complex ways in which nature and culture may come into adaptation.⁵⁴⁷

* Bower¹¹⁷ found that popularity in the eighth and ninth grades correlated with physical ability and strength but not with intelligence, achievement, home rating (socio-economic status) and height. These relationships are probably due not only to a high premium placed on motor skills but also to the fact that strength and other aspects of physical ability are associated with such favorable traits as activity, aggressiveness and leadership. Some adolescents achieved popularity when low in physical ability but high in some compensating factors, such as exceptional degree of enthusiasm, friendly sociability, or an aggressive enterprise.

What It Means to be an Early or Late Maturer. It is in early adolescence that individual rates of growth become of increased importance to the home and school adjustment of the child. Differences between children become greater and there will be in any group children who are slow in maturing and others who mature early.* For the extremes the potential hazard of being different from their peers has become a reality. When a girl reaches an early menarche at ten or eleven years of age, or a boy reaches sexual maturity at twelve or thirteen the sudden growing up represented by menstruation and its problems in the toilet rooms, and by the appearance of secondary sex characteristics evidenced in gymnasium lockers and shower rooms can make a child the subject of curiosity for classmates who will be, on the average, undeveloped children for another two or three years. On the other hand acute anxiety may occur in the child, such as John described above, who, in the later years of high school, finds himself still an undeveloped youngster in the midst of his well-developed classmates.

For a girl early maturing creates a hazard to her social adjustment.† Such a girl is taller and has acquired the figure of a woman. She, therefore, may feel conspicuous. Most boys of her chronological age will be shorter. This will create a problem for her at parties when partners pair off for dancing. She can accept this with better grace if she is given some assurance that this condition is temporary. An explanation of her growth pattern will allay her anxiety that she will always be so tall in relation to others. She can be given pride in her body rather than embarrassment and thus encouraged to hold her body in good balance. Some of the poor posture in early adolescence is the result of an attempt to minimize size and conceal developing breasts.

On the other hand boys may have acute psychological distress if they are late maturers because they are short both in height and in physical ability and lack the characteristics of masculinity that are demanded by our culture. Their anxiety about their size is intensified because of the realization that the age when growth ceases is not so far away. To them, also, an explanation of their growth pattern, a demonstration that other boys have had a similar experience and some friendly counseling about ways in which they may hold their own among their contemporaries will carry them over this period.

* See chart on p. 296 which indicates the individual differences in the age when boys and girls mature.

† In the California Adolescent Growth Study, it was found that the early maturing girls and the late maturing boys made the poorest social adjustment.⁷⁷

It has been said before that freedom to grow at one's own pace should be the right of every child. Early maturing children may suffer especially in an environment where an expanding social life and growing independence are both restricted. The outlet of the ensuing conflict between internal desires and environmental restrictions may find expression in various ways, either through behavior or some physiological indication of emotional tension. Bayer reports the case of an early maturing girl who at eighteen years of age weighed 180 pounds and wished to reduce.

She is described as:

... a strong, healthy girl with the usual childhood diseases, good appetite, plenty of "pep," normal physiological responses except for mild hypertension.* Laboratory data uncover no metabolic abnormalities. But a sexual evaluation is illuminating. The girl started menstruating at the age of ten, and looks like a Rubens' painting. That is, she is an early maturing, highly differentiated feminine type. One would expect her to be busy with social doings. But, when inquiry is made into her social opportunities, they turn out to be unusually limited. Her father is from Yugoslavia. He thinks a girl should stay at home nights, Sundays, all the time except when she is at work contributing to the family exchequer. While her friends go to shows and parties, this girl stays at home and nibbles in despair. Perhaps her elevated blood pressure is resulting from her suppressed rage. How help her lose weight? By giving her a diet? Of course. But, at the same time, the physician must help her bring the father up to date.⁶⁶

The more "mature" interests which follow on the heels of biological development can become troublesome for the early maturing child who is bored by his classmates, as well as for the later maturing child who is left behind and feels strangely out of touch with his peers. A biologically mature girl, reading from childish fifth or sixth grade readers, is not likely to be challenged academically. An underdeveloped child is bewildered and confused by discussions about marriage and boy-girl relationships, aimed at the mid-point of developmental interest in junior and senior classes in high school.

Obesity Is More Than too Many Calories. Obese children are almost without exception not the happy-go-lucky individuals that the world tends to associate with overweight.

Timid and retiring, clumsy and slow, they are not capable of holding a secure place among other children. Over-sensitive and unable to defend themselves, they are helplessly exposed to the jeers and heckling of their more active comrades. Thus they shun healthy play and exercise and become miserable and seclusive.¹⁵⁰

* High blood pressure.

However, fearfulness and lack of interest precede rather than follow obesity. The obesity is a part of a constellation of traits that portray a child who is immature socially and emotionally, yet is advanced physically, including both bodily size and physical maturation, and has good intelligence.¹⁵² In order to understand him it is necessary to investigate his family, for it is here that we find some valuable clues. The obese child, according to the Bruch studies,¹⁵⁴ typically lives in an overprotective and oversolicitous environment generally with a dominating mother and a weak and submissive father. The oversolicitude and protection of the mother cannot hide her underlying insecurity, possessiveness and often hostility to the child. These inner feelings are reflected in her behavior. The home, therefore, does not fulfill the child's basic needs of being loved and accepted for himself and having opportunities for development along his natural channels. He resorts, therefore, to eating as a substitute gratification.

Spock⁹⁴⁰ points out that around the age of seven some children tend to become obese. Such children overeat as a compensation for being unhappy and lonely. This is a period when a child is withdrawing from the close emotional ties of the family. If he is not successful in establishing close friendships with other children he feels alone. Eating to him, at this time, may give him comfort. He may also use it as comfort when he has trouble at school or at home.

The temporary increase in weight of some boys during pubescence also is a liability in that they are disturbed because their development does not fit into the pattern laid down by Society. A boy may be fearful that he will never become a real man. Adults can help obese children not only by helping them to regulate their diet* but also by making sure that their home, school and social life are as happy and satisfying as possible. Such children can be guided into activities compatible with their physical health and vigor, and in which they can achieve a definite degree of success and, therefore, satisfaction. Boys approaching puberty can be reassured that their obesity will not interfere with their maturing.[†]

Correlation of Mental and Physical Growth Positive But Not High. Before leaving a discussion of the interrelatedness of growth we need to survey the evidence of the relationship of

* Obesity is due to an imbalance of energy intake and output. Too keen an appetite for high caloric foods is a frequent contributing factor.

† Bruch¹⁵² found in a study of more than 200 boys and girls who had become obese before pubescence that they tended to be accelerated in height and bone maturation. Early puberal development was the rule for obese girls and not unusual for obese boys.

mental to physical growth that comes from correlation studies. The type of relationship between physical maturing and mental (or intellectual) maturing is in dispute. The popular idea has been and still is that when people possess physical superiority they are by nature inferior intellectually—"beautiful but dumb"—and that brainy people are weaklings. There is no scientific evidence to support this view of compensation. The evidence, in fact, in spite of some dispute, seems to lean slightly in the direction of correlation rather than of compensation. The inferior child intellectually seems to be slightly inferior all the way around. The superior child intellectually seems to be at least slightly superior also in physical capacity.

It is well known that certain forms of physical dwarfism, such as cretinism, are accompanied by mental defect. Jones,⁵⁵⁰ in summarizing the literature on the subject of the relation of physical defects to intelligence level, concluded that there is a small causal relationship between physical defect and slower intellectual development.

Terman's *Studies of Genius* is widely accepted as evidence of the correlation of physical and personal traits. He studied a thousand children whose I.Q.'s were 140 or over, and reports that gifted children are, as a group, physically superior to the various groups used as a comparison.*

There is some evidence that in the wide range of so-called normal children there is a small, but persistent, relationship between socio-economic status, physical and intellectual factors.†

There is some evidence that correlations between motor tests and I. Q. and between general physical and intellectual development are negligible. However, the preponderance of evidence

* Terman⁹⁹⁰ based this conclusion on the following evidence:

"When age is made constant for the entire group of children from two years to fifteen years of age, by means of partial correlation, a small but probably significant positive correlation is found between mental age and height for boys and girls, but no correlation is found between mental age and other physical measurements.

The examining physicians are in accord in the belief that, on the whole, the children of this group (gifted) are physically superior to unselected children of corresponding age in the school population."

† Abernethy⁹¹⁷ found a positive correlation between intelligence and various physical measurements at all ages between eight and seventeen years. In the case of height the correlation with intelligence was .26 for boys and .16 for girls. Bayley⁹⁹ found a similar correlation for children from two to eight years of .20 for boys and .22 for girls. These may not be true causal relationships, but, rather, both the height and the intelligence level may be due to socio-economic factors. However, Honsik and Jones⁴⁷⁹ concluded that genetic rather than environmental factors are probably the determining factor in physical-intellectual relationships.

points to a low, positive correlation. Since it is low we can expect that there will be many exceptions within any normal sampling. There is, however, convincing clinical⁸⁸⁸ evidence that delinquency is closely associated with physical inferiority.

Perhaps some of the confusion lies in misunderstanding as to whether we are talking about sheer intelligence, or about the way intelligence functions. That physical condition, short of brain or nerve damage, has little to do with native intelligence is probably true. Promoting physical growth will probably not increase inherent intellectual capacity. In this sense they are not interrelated. However, the manner in which the native intelligence functions, being dependent upon attentiveness, concentration, self-confidence and aggressive attack upon problems, is unquestionably related to physical well-being.⁷¹

APPLICATIONS OF THE CONCEPT OF THE WHOLE CHILD

Applications for Doctors, Nurses, Nutritionists and Dentists. For those who work primarily with children's bodies the chief application of the "whole-child" doctrine would lie in the recognition by these workers that children have personalities as well as bodies. In working with children's physical health the worker should never forget that mental health is of equal importance. Excepting in extreme emergency the doctor, nurse or dentist should be meticulously careful to avoid use of physical force in treatments, since physical force may produce severe psychological reactions. Antagonism toward doctors, nurses or dentists may, for example, be set up with the result that the patient may thereafter avoid contacts with these professions or, if later contact proves unavoidable, may carry so uncooperative an attitude that successful treatment is difficult or impossible.

Under emergency conditions of accident, severe illness, or hospital entrance children are particularly susceptible to emotional conditioning. Recall in this connection the law of learning which states that learning is most permanent when the learning situation is vivid. Attitudes and emotional conditionings set up under emergency or unusual circumstances make a far more permanent impression upon children than would be made under less emotional circumstances. It is, therefore, particularly necessary for workers who treat children in emergency situations to deal wisely with them. For example, the doctor's or nurse's or dentist's lie to the child, "Look out the window and see the bird," followed by the jab of a needle or yanking of a tooth builds deeper

distrust of adults than most "emergency" lies by a parent or school teacher. The statement, "This won't hurt at all," immediately followed by pain, leaves an equally unfortunate impression. Children dealt with in this manner can scarcely be expected to believe doctors or nurses or dentists in the future. Few children fail to rise to a quiet statement, "This will hurt, but I'll be careful, and you'll help me by being quiet, and we'll be through in just a minute; . . . there, that's fine. You helped a lot."

Because emotional conditioning is deep and permanent under emergency circumstances, doctors and nurses should learn enough about the psychology of children to know how to reassure them without over-assuring them. Over-assurance leads to the suspicion that there must indeed be something to be afraid of or this grown-up wouldn't talk about it so much. Fear is a natural accompaniment of threats to bodily security. Doctors, nurses and dentists must of necessity be associated with pain and terror. It is imperative that these workers learn how to do what must be done in a manner that will minimize fear, distrust and antagonism and that will win from children a maximum of cooperation and trust toward adults in general and toward their professions in particular.

Another aspect of child development is of immediate importance to physical growth workers. Knowledge of child development can afford an understanding of what well children are like both mentally and physically. Doctors who do not know well children are handicapped in the diagnosis and treatment of sick children. More than this, physical growth workers, particularly doctors, are expected to know something of whether a given child is "normal" mentally and emotionally. Unfortunately, the physician or nutritionist, nurse or dentist who has not actually studied the patterns and sequences of normal mental and emotional development may answer parents' questions and make diagnoses and suggestions which are inaccurate and misleading. A still further reason for knowing something of normal mental and emotional growth and behavior is that physical growth workers are inevitably dealing with habit formation. What good sleep habits, food habits, toilet habits, temper control, obedience and play habits are at one year, at five years, at ten or fifteen years is basic working knowledge.⁹⁴⁰ Not only must these workers know what good habits are; they must also know how to get them established, and they must understand parents, teachers and other child-agency workers well enough to cooperate in the development of good habits. Adolescents are particularly in need of

guidance from doctors as well as from teachers and other outside-the-home agents. Their need to understand themselves, and their anxiety about their own physical and physiological normality lead them to lean heavily upon any understanding adult, particularly upon doctors, nurses and school teachers. The doctor or nurse who knows nothing of adolescent psychology is likely to fail this job completely.

Applications to Social Work and Guidance. Everything that has been said above about emergency situations applies here. The social worker or guidance person also meets children at critical periods, when their homes are being broken up, when illness, death or other dramatic circumstances have entered their lives. The children are frightened, bewildered, or otherwise emotionally disturbed. Wise treatment at such times may make all the difference between a quick emotional adjustment with accompanying physical well-being and serious emotional disturbances. Little need be said about this question here since social work training includes great emphasis upon psychological reactions.

It is necessary, however, to emphasize the importance to social workers and guidance people of a knowledge of children's physical growth and well-being. No steps in psychological diagnosis or treatment should be taken without clear knowledge of a child's physical condition—past and present. Many attitudes and reactions of children, particularly when they are faced with an emergency or crisis situation, are reflections of current or past physical conditions. The psychologist or social worker who presumes to account for psychological reactions solely on the basis of current and past psychological situations may miss the point badly. Just as it is important for physical growth workers to understand basic principles of psychological development and reaction, so, too, it is imperative that the psychological worker understand at least the elements of physical development and reaction if intelligent work with children is to be done.

Another analogy with the physical growth worker's situation holds here. Just as the physician needs to know well children, so, too, the psychologist or social worker needs to know healthy, normal children and families. Too often the psychologist or social worker knows only the abnormal or pathological aspects of children and of families. They cannot deal intelligently with pathology unless they know what normal growth and sound family life are. Too often behavior problems which are aspects of perfectly normal growth, e.g., the negativism of two-to-three-year old children, the aggressive boisterousness of eight-to-ten-

year-olds, the "stealing" of the six to ten-year-old, are picked up by psychologists or social workers as abnormal or problem behavior. Unless such workers are trained to detect the difference between negativism or aggressiveness or stealing which is "normal" and that which is truly problem behavior they run the risk of frightening parents and children unnecessarily. Not infrequently such normal behavior, dealt with as problem behavior, does become a problem. Social workers and psychologists should be trained to correct—not to create—problems in child growth and in family life.

Applications for Schools and Teachers. Although we have probably always recognized that body, mind and personality are closely interrelated in growth and functioning, and although we have clear evidence from recent studies of the continuousness of each aspect of growth, we still have failed to adjust our school programs to these facts. The doctrine of the "whole child," emphasized continuously in teacher training has not borne adequate fruit in actual school administration and school teaching.

Bailey gives us the brighter side of this picture when she says:

Every aspect of formal education, from administration and finance to curriculum and class management, has been touched and changed by the diffusion of knowledge of child development into official circles. But so far child study has had its most successful application in the field of educational hygiene. Learning to think in organismal terms has forced us to give a place to body well-being and soundness, hygienic environment, and medical supervision of growth and development. Results have been gratifyingly recognizable, prompt, and fairly predictable. Improving nutrition, getting rid of tonsils, adenoids, and infected teeth, fitting glasses, and taking care of orthopedic defects have proved useful measures. . . . Cross lighting and glare are far less common in the schoolroom, the common towel and drinking cup are almost extinct, school lunches are legitimate objects of intelligent concern; open-window ventilation and air-conditioned comfort have taken the place of the malodorous hot-and-cold classroom of thirty years ago. . . . But the educational philosophers have shown slight recognition of the maladaptive aspect of human conduct.⁴³

The better school systems have done these things. Unfortunately, however, the majority of schools in the United States, and almost all schools everywhere else in the world have made no moves in this direction.

Nursery school education, wherever it exists, is typically a thing apart from the kindergarten and primary. The kindergarten is often completely unrelated to the primary. June is the month which ends the freedom of the kindergarten for all children

whose birthdays fall between November of the previous year and November of the coming year. September is the beginning of the more restricted activities of the traditional first grader. Children are "promoted" annually in most school systems, semi-annually in others. If the maturing of each child is "ready" on an extremely rough average for the next grade, he passes; if not, he repeats a whole year, or half year. A few progressive school systems are doing away with grade designations, and in so doing are adapting the work much better to the growth tempo of individual children.¹¹³ However, nearly all schools make a transition from kindergarten to primary, from primary to upper elementary, from there to junior high school, and thence to senior high school which is abrupt and effected on a rough average-maturity basis with little or no consideration for the continuousness of growth or for individual variations in growth. The slower grower fails to "pass." The faster grower may "skip" grades, or stay with the average growers. The uneven or disharmonious grower fits nowhere in particular, moving along roughly in time with his mental age, but frequently grossly out of tune with his physical age and his personality age.

A number of progressive educators have attempted to meet this difficulty of group classification for individual children. Some have coached children academically to help them carry on with children of their own advanced physical and social maturity. Others have offered academic "enrichment" to keep children of advanced mental age happy and intellectually awake in groups which fit their average or retarded physical and social maturity. Some administrators have broken up the day's schedule to permit children to exercise and play with physical and social peers, while doing academics with intellectual peers. Some have even broken up the academic day to permit children to do social studies with peers, but to read or write or do arithmetic (tool subjects) at the reading or writing or arithmetic level of their present capability. These devices to adjust school programs to the growth needs of individual children have worked with varying success, depending upon the insight into and real knowledge of the child's growth levels, home cooperation, and other vital factors.

This need to adjust the school to the needs of individual children is emphasized by Bailey and associates when they say:

Men know very well how to shape children in a common mold by education organized to that end. But how to release the gifts of each unique citizen for the good of all, himself included, is not yet well known or practised.⁴³

HOW WE CAN UTILIZE THE PRINCIPLES OF GROWTH

It Helps to Know What to Expect and When to Expect It.

If we do not know something of stages of growth and of growth patterns we may find ourselves in trouble with our children because we expect too much of them. For example, the father of a fourteen-months old boy was disgusted with his child because whenever he tried to play with him he got "no cooperation." He knew so little about babies that his only idea of how to play was to offer the child a deck of cards and attempt to explain to him how to play a game with them. This seems exceedingly far-fetched, yet it is an actual incident, and illustrates how lack of information about what to expect of children can complicate one's dealings with them.

On the other hand, we may not expect enough of them, and hence make too little provision for the development of whatever capacities they have. One set of parents had done nothing to investigate the mental well-being of their child who at twelve months had made no attempt to sit up. This baby ate and slept well and gained length and weight at a satisfactory rate. The parents had so little understanding of the nonphysical factors of growth that they assumed all was well. Much could have been done to stimulate this baby's activity without forcing him had the parents known that he was a slow-mental-grower and, therefore, that he needed special encouragement and special practice.

Still another set of parents were thrilled that their two-and-one-half-year-old daughter could recite 150 nursery rhymes. They lost sight of the fact that many children of this age can be coached into such a stunt and, therefore, that its accomplishment did not necessarily indicate the genius they thought it did. They also failed to read the signs of high nervous tension which should have indicated to them that they were pushing their own little girl far beyond the natural limits of her mental growth, and that they were purchasing a short-lived ego satisfaction for themselves at a serious cost to physical well-being and nervous stability for the child.

Some understanding of what can generally be expected from children at any given age is useful as a background, if one can somehow learn to use these standards as guides in judging the natural pace of one's own child. They are disastrous if used as whips with which to drive any given child beyond his own natural pace; yet they can be helpful in locating retardations of natural pace which might be corrected. Knowledge of standards should help us, in other words, to judge the pace of growth for any given

child, and should, therefore, keep us from forcing growth, thus helping us to keep it flowing at its own maximum natural speed.

Another pair of parents were greatly troubled because they did not recognize a "passing phase" of growth, in this case behavior which, though troublesome, evidenced very desirable basic growth. When their boy was eighteen months old they were ready to place him in a boarding home because, "if he keeps on being as increasingly hard to manage as he has been for the past six months we cannot handle him." They had no insight at all into the fact that the thirteen- to twenty-months stage of development for most children is one of the most trying, if not the most trying of all childhood periods for the parents. The run-about child has just expanded his horizons so that he can get into everything, climb almost everywhere. Yet he has not yet accumulated enough experience to know that sharp knives cut, ink stains carpets, the medicine cabinet is dangerous. He, therefore, requires constant watching and constant prohibitions. His parents must understand his growth needs sufficiently to provide the physical and mental activity essential to his development, yet provide it under conditions which permit safety and freedom from the need of constant supervision and nagging. The parents of this particular child did not so understand and provide for his growth needs; nor did they know that this hyperactive, troublesome period is temporary. They could see only the complicated behavior situation which had arisen, and could only suppose that the crescendo of difficulty in managing the child would soon reach the stage where he would be completely out of hand. When they gained some insight into the child's needs and how to provide for them they were able to restore at least a modicum of peace in their relationships with the child, and once more experienced the joy in his development which is natural to parents who are not at loggerheads with their children.

A mother of an eight-year-old boy, who had maintained a beautifully harmonious relationship with him until then became tense and began to nag him constantly. The "perfect little gentleman" whom she had reared so carefully began to race into the house without wiping his feet, to "wolf" his food at the table, to demand corduroy knickers, loud plaid shirts and heavy-soled shoes. He nagged for the clothes; she nagged his manners. Things went from bad to worse. One day he came home with a black eye, the result of a fight because someone in the gang had referred to his trim shorts, white shirt and long socks as "sissy." He was sullen and refused to explain why he had been what his mother called "a common little street gamin." Finally, in des-

peration she sought help. Being an intelligent woman, and, like most parents, exceedingly anxious that everything possible be done to promote the health and well-being of her child, she was quick to understand the explanation of his behavior. He wanted desperately to leave his babyhood behind him. He was at the growth stage when, in order to do this, he must free himself from the manner and dress identified with babyhood. He was facing the adjustments to the rougher (and, therefore, more real) disciplines of his peers, the cruder and more easily understood directnesses of manner of the "gang age." Had he failed to develop away from babyhood and into the increasing independence and vigor of childhood something would have been seriously wrong with his inner growth drives. That he needed to shout and to run and to fight for his rights in the only language which the gang could understand; that he needed the freedom and durability of more substantial and, therefore, more "manly" clothes; that his personality needed to move at least somewhat away from the submissiveness of babyhood and toward the healthy aggressiveness of full-blown childhood; these things his mother could now understand. How he might accomplish these growths without becoming an ill-mannered ruffian, crude at home, sloppy at the table, impudent to adults, yet at the same time aggressively free with his peers and able to take care of himself on the playground became her problem, as it becomes the problem of all supervisors of children between the ages of six and twelve years of age.

Such misunderstanding of the processes of growth and the needs of the grower often produces disharmony and strain between parents and adolescent children, or between the teacher and the adolescent. The demands of the normally developing adolescent for independent action and for freedom from the brand of adult supervision which characterized the early childhood period often lead to exaggerated defiance on the part of the adolescent, with a compensating exaggeration of specific controls by the parent or teacher. Each acts to aggravate the other, whereas an adequate understanding on the part of the adult in control should provide a gradual release from authority throughout the childhood and pubescent period, and a tolerant understanding of the awkward attempts of the adolescent to assume authority over his own life. *Many children are regarded as behavior problems when they are only passing through quite natural phases of desirable growth.* The behavior problem situation arises because the adult in control does not understand what is happening and, therefore, handles the situation badly

Understanding of Growth Should Help Us to Know How to Make the Most of Each Growth Stage. If we know something of the sequences of growth we should be able to provide experiences which would help children to make the best of each phase and to prepare best for each ensuing phase. This means providing materials, companions, incentives and opportunities for expression, appropriate to each stage of development. It means also giving the child encouragement through praise which recognizes a really good performance *for him, at his stage of growth*, but which avoids the discouragement of insistence upon a standard



Fig. 11. A boy student learns about children by helping in the shop room of a settlement house.

of performance which is beyond him or the smugness resulting from praise too easily given for a mediocre effort and mediocre performance. The same holds true of the corrections which guide learning by pointing out errors of performance. Blaming a child for what he cannot help is discouraging to effort and best learning. Yet pointing out areas in which performance can be improved, especially if accompanied by suggestions on how to accomplish the improvement, can be most constructive if it leads the child in the direction of a desirable next step in growth.

Although children, if given a reasonably rich environment and a reasonably free opportunity to learn, will make their own next

needs apparent* and will take their own next steps in growth, it is helpful for the adult to know what these needs and steps are, not only in order to understand them but also to help provide for them. In adolescence, for example, parents who have known since the child was a baby that eventually he must make his own decisions and carry his own responsibility, will gradually remove the control of their authority. This requires a nice understanding of physical and mental growth steps in order to remove control fast enough, yet not too fast. Removed too slowly the child must fight for independence and, unless completely cowed, will do so. Removed too rapidly, the child is left making decisions and taking responsibility for which he is not ready. In this case the consequences of bad decisions may frighten him away from responsibility on the one hand; or on the other hand may produce the drunken sense of knowing more than he actually does which leads him into brash decisions and real tragedy or at best into smugness of personality. Knowledge of "when is enough" of any opportunity or of any experience is basic to intelligent guidance of children at every stage of their growth.

Frank expresses the need of adjustment to growth in adolescence:

Adolescence is both a biological process and a social cultural transition. The juvenile organism undergoes a process of growth and maturation as it moves toward adult size and functional capacity, and more or less concurrently. The individual must pass through a transition from the status and conduct of a child to the responsibilities of the adult. The suitable adjustment of these processes, each to the other, and the appropriate direction and timing of the demands made by adults upon the developing adolescent are important factors in the ease and adequacy of growing up in our culture.

With a better understanding of the organic growth and maturation of boys and girls during the second decade, and with more insight into their personality development and social adjustment, we may hope to control some of the sources of pressure and strain which now constitute hazards of major or minor import in the lives of many adolescents.³³⁹

HOW PEOPLE FIND OUT ABOUT THE GROWTH OF CHILDREN

Child Study Is Not New. Every primitive tribe has its own code for rearing the coming generation. The Chinese and Hindus have patterns for child training which have endured through many centuries. As long as Society remains stable family life proceeds in fairly constant patterns, little change being needed

* Olson^{751, 757} uses the term "seeking behavior" to express the child's demonstration of his readiness for new experiences.

from one generation to the next since each generation of adults meets few new or unprepared-for situations. The extremely rapid changes in manner of living and working which resulted after the Industrial Revolution, however, have necessitated new adjustments with each generation of adults. Scientific research has added tremendously to our knowledge of people as well as of things. Not only has our economic world changed; our social world has changed as radically. This places rigorous demands upon both physical and psychological stamina. Adjustments have been so rapid that old, socially inherited patterns of family life and child rearing have not always worked. There is current need to learn as much as we can about how to preserve the best values of family life, and how to insure optimal development of all potentialities possessed by everyone.

There are now many important centers for the study of family life and of child development. A number of outstanding colleges and universities offer advanced degrees in child development, family life and human relationships. Many communities have developed child health clinics, child guidance clinics, and family consultation centers. As students who wish to deal intelligently with children and with family life, we should know at least a little of how this science proceeds.

Accurate Observation Is as Important Here as in the Physical Sciences. Unaided observation does not offer a sufficient basis for understanding and guiding children, or for learning about any type of human development. We can observe gross differences but not fine enough ones to be of assistance in following the gradual progress to maturity. Observation alone is unreliable in judging intelligence. The color of the skin cannot be relied upon for detecting mild anemias. Looking at a child gives us very little clue to the amount of weight he has gained in a given time or to his increase in height. Rather, the eye and ear must be trained in acuteness and guided in their direction of observation. In addition, precision instruments are selected to measure growth in size, change in structure and in efficiency of function. Scales, measuring boards, calipers and tape measures are devices used to detect changes in size. The observation of bone development is made possible by the use of the x-ray. Biochemical tests and various instruments are used to determine the status of body functions. Performance tests measure motor achievement. Batteries of mental tests form the basis for testing intelligence. Projective technics, including the Rorschach and the Murray Thematic Apperception Test are used to test emotional characteristics and adjustment.

There Are Two Ways of Studying Growth: Cross Sectional and Longitudinal. There are two methods of studying growth, the cross sectional and longitudinal. The cross sectional method involves the measuring or testing of different groups of children at different ages or stages of development. In such studies the same child is not represented at different levels. Many of the norms now used were collected in this way. Such norms as the mental abilities at various age levels, vocabulary norms, interests of the six-year-old, and the Children's Bureau Standards of height and weight are examples. By the use of such norms, general trends can be determined. It thus becomes possible to determine what is generally expected and how great will be the difference among individuals. However, individuality is badly concealed.

On the other hand, the longitudinal method involves the measuring or testing of the same children through a number of years and, therefore, through each successive stage of growth. To collect norms in this way requires more time but is more reliable for determining growth trends.*

In addition to serving as another method of establishing norms, the longitudinal method can be used also to study individual patterns of growth as the cross sectional method cannot. When a battery of tests and observations are repeated regularly much can be learned about the dynamics of growth.

Many of the child development research centers† in the country use the longitudinal method and have been following the same children through long periods of years. In doing this these centers usually study the growth of an individual child (1) by comparing his growth at any given moment with that of representative groups of children—that is, comparing him with appropriate norms—and (2) by following his individual progress through successive stages. The first way gives the status of the child at one point in his life; the second way reveals from whence he has come and in what direction and how fast he is going. A judicious combination of status and progress evaluation is valuable.

Standards Must be Used Wisely. One must remember, in using these norms, that these figures are only averages, and that

* Shuttleworth⁹²⁷ found that for the purpose of determining growth trends of height of homogeneous groups repeated measurements on the average population of only 248 cases represented the equivalent of approximately 270,000 cross sectional measurements.

† Brush Foundation, Western Reserve University; Child Research Center, University of Illinois; Child Research Council, University of Colorado School of Medicine; Experimental School, University of Michigan; Fels Research Institute, Antioch College; Merrill-Palmer School, Detroit; Institutes of Child Welfare, University of California, University of Iowa, University of Minnesota.

approximately one-half of the six-year-olds examined do better than, or are taller than, the figure given for "mental age" or for "height age"; correspondingly, the same proportion do worse, or are shorter. Such standards, or average figures, have often been used unwisely.* There is a tendency among some workers and parents to check all six-year-olds against the fixed figure regardless of individual differences and in complete disregard of a "normal range" of variation in growth.

It is important, too, in considering standards not only to consider the "normal range" of the population at large, but also to think of the "normal range" of the specific group in which the child finds himself growing up. We know, for example, that height of children has increased in the last few decades.† Therefore, more recent norms for height and weight are desirable. Children also will differ in height according to their socio-economic status, their ethnic group and their geographic location.‡ Thus a false sense of security about the growth of a child might result from lack of consideration of these factors. We know, too, boys and girls differ in height and weight; girls are ahead of boys in bone maturation. Since the expected optimum of growth and development differs from hereditary group to hereditary group and from one environmental circumstance to another, one should always use standard figures in the light of full knowledge of their relevance to any given group of children or to any given child in that group.

In the same way "mental age" standards are useless in dealing with children whose opportunity to learn differs from the average opportunity unless full account is taken of these differences. A child, handicapped in vision, or other sense, or crippled in body, cannot be measured by scales standardized on normal children. Social development scales and standards also must be utilized only with a clear understanding of the group experiences available to the child or children being measured, to the ethics or moral standards of the families and neighborhoods in which the children live, and to other important factors which inevitably determine the stage and the pattern of growth possible for any given child

* Thompson reminds us, "Norms are not criteria for optimal development. They are statistics for basic comparisons."¹⁰⁰¹

† Boys, White and Negro, nine to fourteen years of age are 6 to 8 per cent taller and 12 to 15 per cent heavier than was the case half a century ago.⁶⁹³

‡ According to a summary by Meredith⁶⁹³ White boys living in the United States of professional and major managerial classes are up to 3 per cent taller than those of the unskilled and semi-skilled classes. Differences in ethnic groups is not greater than an average of 2 inches. The difference between different localities is slight.

at any given age. The "normal range" of any group in any measurement will differ for each racial background and for each environmental opportunity.

Further illustration may serve to clarify the need of care in interpreting any given child's standing in relation to standard test and measurement. Acceleration on a language scale may not mean at all a special gift in language; it may only mean that the given child has been especially coached in language accomplishment, or has been continuously exposed to an environment especially rich in language usage. Usually, in a case of this kind, the rich language environment would be provided by a pair of parents themselves especially endowed in language. A child of such parents may or may not have inherited the special ability. If he has, he will naturally benefit markedly from the superior language environment, and will move forward in language more rapidly than most children. If he has not inherited the ability he will benefit less from his rich language environment. However, one must be alert to the occasional child of only average native language ability who, because it is the thing to do in his family or because accomplishment in this field wins him special attention, concentrates unusually hard, learns more rapidly than he would without such incentives, and gives greater early promise than he can later fulfill. A precocious vocabulary in young children has often led parents or teachers to predict and to expect great things in writing which the child as an adult could not produce. Vocabulary is often a reflection of a special environment, rather than a natural literary gift.

On the other hand, retardations in "vocabulary age" have often been misunderstood to indicate lack of intellectual or at least verbal capacity, whereas in many public school children they may only mean that another language is being spoken at home and that the child has not had a "normal" opportunity to learn English. A child, lacking such opportunity, may at age six have a vocabulary equal only to the average four-year-old. This would not at all mean that this child, now only two-thirds "developed" in vocabulary, would remain proportionately retarded throughout his growth period, having only an eight-year-old vocabulary at twelve, and so on. Having had restricted opportunity, such a child will, at six, have made only a beginning in the learning of English. What one needs to watch in such children is the increment of progress, or increase in rate of growth. It is how fast the child learns, or grows, rather than where he is at the moment, that counts. Even this child of four-year-old vocabulary at age six may grow in vocabulary eighteen months in the next twelve,

so that at age seven he will measure five and one-half in vocabulary age. Being still a year and one-half "retarded" in vocabulary, he will, nevertheless, have indicated accelerated growth, and will probably shortly "catch up" with his chronological age. In fact he may eventually prove to be "gifted" in language.

In the Use of Standards, Each Child's Unique Pattern Must Be Considered. The practice in the past simply of examining the child at the moment and matching him in a Procrustean fashion with the norms is losing some ground. The emphasis of fitting the child to the expected mold is being replaced slowly by that of letting the potentialities of the child unfold in an environment rich enough to meet his needs. Therefore, where he is in his growth at the moment means little unless it is set in the framework of where he has been and in what direction he is going. For example, a child might compare favorably with standards at the moment, yet actually be a superior child who has lost his impetus, so that he is lagging in what should be *his* rate of growth. The fact that he has lost impetus may be of tremendous significance, and it is this fact with which we must deal, rather than with the fact that he is average for his age at the moment of measurement. Or again, a given six-year-old boy may be only as tall as the average standard of the five-year-olds of his ethnic and socio-economic group, yet he may be at the time making a perfectly satisfactory height gain. Mature height for him, measured in terms of that of his two parents, may be below the average of mature adults of his group. In other words, he is now and will continue to be a short person, and his present "retardation" in growth is not a retardation at all, but optimal development for him.

Since children differ widely both in their pattern and pace of growth our understanding of a so-called "normality" must widen. As described in Rand *et al.** we can see development traveling in channels. They discuss the application of the channel system to social growth with the successive steps or maturity stages of each channel having their own characteristics. In this way a child is measured by his progress along his own channel or pathway of growth.†

It is important, then, that school and other agencies dealing with children should develop devices for studying the wider back-

* For further discussion of the channel concept see Rand, Sweeny, and Vincent,⁸²¹ Chapter I, and Chapter VIII, p. 264.

† The channel idea is clearly demonstrated by the Wetzel Grid,^{149, 1049, 1060, 1089}—a device for evaluating children's growth in height and weight. It is described later in Chapter 7.

ground of children and for keeping cumulative records, so that studies of any given child at any given time may have the perspective lent by a knowledge of his background as well as of previous and present trends in his growth.

CASE STUDY

In order to get a clearer picture of how an understanding of growth principles may be utilized in helping a child to adjust to the demands made upon him, let us look at Bob, aged seven years and one month and in the first grade at school. In February he began showing signs of fatigue.

Since Christmas he had been absent several times, two or three days at a time, with colds. His disposition, ordinarily cheerful and cooperative, had been somewhat "prickly." He found it hard to concentrate, was "fidgety," and had been biting his nails. All these signs were particularly evident from eleven o'clock on in the morning, and lasted until the noon recess. Again, fatigue was apparent from two-thirty on in the afternoon. He had been tardy frequently in the mornings, although this was not new. It probably indicated a lack of sense of responsibility about getting himself off in the morning, or bad management on the part of his mother, or late bed hours. If due to late bed hours it might be related to his present fatigue. Mentally alert, he had learned to read quite well, but his attention shifted, and he seemed unable to hold himself to definite goals. Although he was not failing in school he definitely needed help.

What should one look for in order to understand his situation and to be able to help him? In the first place, his colds, his fatigue at the end of the school sessions, and his nervousness mean that we should know more about him physically. Is he suffering from some infection or other physical drain? What is his daily routine? What are the demands upon his energy, and what is being done to replace the energy used up? The school nurse, called in by the teacher to discuss his case, suggested a thorough physical examination and the teacher decided to visit the home in order to learn more of his routine as well as to talk with his parents about the desirability of a physical examination. In many school systems this home call would be the business of the school nurse, who would supposedly have a specialized training in home contacts. The teacher actually knows far more about each individual child, however, and if she will take the time she can give the parents a much clearer picture of the child's school situation. At the same time she can learn much from the parents which will help to explain the child to her and upon which she can build a good school program for him.

Bob's home was a brick bungalow, containing seven rooms and a recreation basement. It was situated on a quiet residence street in an above-average neighborhood where there were trees, wide lawns and several vacant, wooded lots. It was quite evident that there was ample play space, and the vigorous whoopings of a nearby game of "cops and robbers" indicated that Bob had plenty of available playmates. His mother, already informed of the visit by a note from the teacher, was at home, and proved thoroughly cooperative since she understood that both she and the teacher

had a common goal, namely, Bob's welfare. Boyish as Bob was, he ran in from play when he caught sight of his teacher. Eagerly he showed off his home, of which he seemed proud. Special interest points were his room, shared with his nine-year-old brother, the well-equipped play room in the basement, and his bicycle stall in the garage. Twin beds, carefully allotted closet and drawer space, and duplicate stalls all indicated care to give each boy a feeling of his own place in the household. There was a two-year-old brother who still occupied a nursery room. There was no evidence from Bob's relationship with either brother or with his mother that he suffered from being a middle child.

The teacher had noted that Bob's face was flushed and perspiring as he ran in from what appeared to be a strenuous game. She sensed that Bob's fatigue in school might be related to a too vigorous effort to keep up with his older brother. She, therefore, asked who his playmates were, how old they were and what games they most often played. As she suspected, they proved on the whole to be his older brother's gang, a group of strenuous boys averaging nearly two years older than Bob. He was "put to it" to keep up with them, but had apparently acquired the physical skills with which to do so. He had, however, pushed beyond his natural growth tempo in order to accomplish this. His parents faced a difficult decision in the matter since there was no other desirable group of boys with whom he could play. Unless he suffered more physically than was apparent, it was their feeling that he should be permitted to play with this gang rather than with no one at all. Some other way of reducing his fatigue seemed preferable, if any such way could be found.

Bob was sent off to play while the teacher settled down for a chat with his mother. She explained that Bob was showing fine promise in school, was succeeding well with his reading and other academic work, but that toward the end of each morning and afternoon session he became irritable, distractible and restless. She added that his absence for so many days in the past two months because of colds and his frequent tardiness made her wonder if he were getting enough rest and if he should not have a thorough physical examination in order to check his general physical condition and any possible source of infection. The teacher suggested, too, a check on his eyes, for, although he had given no evident signs of eye strain, and could read well for his age, he seemed particularly restless during the reading period. She added that many eye defects go unnoticed until the strain of reading proves too severe a test for what seems otherwise a fairly adequate visual equipment.

Bob's mother replied to this that she was glad of the teacher's check on her own recent observation that Bob appeared overtired upon return from school each day. He had been fussy about eating lunch, and, although he dashed out eagerly to join the gang in the afternoon, he seemed drowsy and too tired to eat at dinner. She had of late tried to urge him into bed earlier but he stoutly refused to go before his older brother.

"Anything which might be interpreted as babyishness is anathema to him," said his mother.

Further analysis of the strains and demands of his day indicated that he

was very hard to rouse in the morning, seemed heavy and "yawny" until after breakfast, when the prospect of school "pepped" him up. The school is six blocks distant; he frequently had to run to make it, and, as we have seen, rather often failed to arrive on time even then. An inquiry about the amount of time allowed for the important morning bowel movement revealed that his mother did not know if or when he had his daily movement. She is not to be too severely condemned for this, since in many homes the beginning of school represents a period of increasing self-care for children who at that time take over for themselves whatever they have not already acquired of the dressing, bathing, tooth washing and bowel movement routines. With two boys to get off to school and a husband to get off to work every morning, the mother had slipped on her checking of the toilet routine. Bob's noon hour was hurried. With six blocks to walk (or run) each way, lunch to eat, and the natural urge for some out-of-door play driving him to still further hurry, the hour and a half from eleven-thirty to one o'clock was crowded. Bob's older brother, being in the third grade, did not get out until twelve o'clock. Lunch was served at twelve-fifteen. Teacher and mother agreed that there was no reason for so much rushing on Bob's part, and that, if he came straight home from school without playing he could rest fifteen to twenty minutes before eating. He should also go to bed half an hour earlier at night. This would require some "sales talk" to Bob, and the teacher agreed to undertake the task of convincing him that rest was not "sissy," but was sensible, especially for him. Just how much he was eating his mother, again, could not say, having three boys to take care of at noon, and four (including her husband) at breakfast and dinner. She was sure, however, that it was not enough, and recalled nagging him lately about eating his vegetables and drinking his milk. She promised to keep an exact record of what he ate for two or three days and to take this with her to the doctor for his guidance.

Questions about Bob's father showed a happy relationship. He was an automobile salesman and did a great deal of night and Sunday work. They lived forty-five minutes by car from his place of work. He seldom saw his children excepting at mealtime morning and night, on occasional Sundays, and in the summertime when they took a family vacation for two weeks. However, he was much interested in all of them, followed their "daily doings" closely through the mother's reports at night when he did finally get home. They minded him well, but without fear. Although his work consumed most of his time, he was not under any special strain, being reasonably sure of his job and more than average in his success in it. Their income ranged from \$1800 in their worst year since marriage to \$5500 at present.

Meanwhile, the teacher observed that Bob's mother allowed him to take the initiative in showing her about the house and yard. Although he was rather boisterous, and a bit "smarty," he nevertheless obeyed when spoken to. The mother seemed a little high strung, but her voice was not sharp, nor did she nag any of the children. Aside from the clear knowledge that Bob was playing too hard with a too strenuous group, that he needed more rest, and that a physical examination was desirable, the teacher felt that all was well, especially in his personal-emotional life. She felt that there was noth-

ing she could do in school hours to increase his rest without singling him out from the others. So she decided upon a quiet talk with Bob about the effect of too great fatigue upon his school work. She decided also to report to him his mother's decision and hers that he needed rest at noon and an earlier bed hour. She knew children well enough to know that he would cooperate if she could convince him that the truly manly thing to do was to face the fact that he was two years younger than his brother and, therefore, needed more sleep, especially if he wished to keep the pace of his gang in play.

Following the teacher's interview Bob's mother had a talk with his father, and together they agreed upon the wisdom of a physical examination. She took along the two days' dietary to show just what Bob had actually eaten, and she was also ready, after special observation of his routines, to answer the questions which the doctor asked about them.

The doctor asked especially about the following points, and received these answers:

What time did Bob get up in the morning? Seven A.M.

Did he have to be wakened? Yes.

Was he rested or tired? He seemed tired.

How long did he take to get dressed? Nearly half an hour.

How long was he at the breakfast table? Twenty minutes.

What did he eat? Orange juice, toast, milk, and, if he would take it, an egg.

Did he have a bowel movement before leaving for school? In the past two days he had one day but not the other. On the second day he was late and refused to take time.

What quantity and of what character were his bowel movements? The mother did not know.

How far away was school? Six blocks.

How long was allowed to make this distance? Certainly not enough. He often ran, and was not infrequently late to school.

How frequently was he absent from school? Eight days in the past two months.

What caused his absences? Mostly colds.

What grade was he in? Second half of the first grade.

Was he doing well? What was his report card like? Very satisfactory.

Here the mother explained about the teacher's visit and Bob's evident fatigue in school.

Did he like school? Yes.

How much time did he have at noon? One hour and a half.

What did he do with it? Played, ate hurriedly, raced back to school.

Here the mother explained the suggestions for change which she and he teacher had discussed.

What did he usually eat for lunch? What, e.g., had he eaten yesterday?

Soup, a peanut butter sandwich, milk, an apple.

When was school dismissed in the afternoon? At three-thirty.

What did he do after school? Grabbed some candy or a cookie and ran out to play. (The mother described the strenuousness of his play. The

doctor agreed that he could not be asked not to play with this gang, but urged that he be called half an hour before dinner and told to rest. He proposed as a compromise to Bob that he follow one or two of the better children's dinner hour radio programs at this time.)

What did he have for dinner last night? Lamb stew, mashed potatoes, lettuce salad, bread and butter, milk, cup custard. However, Bob did not eat much of any of this, since he seemed too tired.

What time did he go to bed as a rule? Here the mother explained the situation with the older brother, and added that she and the teacher had agreed upon an earlier hour. The teacher had already talked with Bob about it, and he seemed cooperative with the new plan. At least, he had gone to bed at eight o'clock for the past two nights. As yet he apparently had not caught up with needed rest since he was still hard to waken in the morning.

The doctor's examination showed the following:

Height 50 inches, placing him in the tall group for his age according to the Baldwin-Wood tables.⁵¹ He had gained 2 inches during the past year.

Weight 55 pounds, which is 3 pounds below the standard. During the past year he gained only 2 pounds of the 6 pounds expected of most boys of his age and height. While his weight was satisfactory for his height his progress in the last year had been slow.

Eyes and ears—normal

Tonsils—normal

Heart—normal

Lungs—normal

Teeth—2 cavities

Muscle tone—poor

Posture—forward shoulders, prominent abdomen, exaggerated curves in the back—a fatigue posture.

As the result of the examination and the questioning the doctor proposed the following:

1. Seven-thirty bed hour; rest at noon. Doctor pointed out the connection between fatigue and lack of appetite, poor muscle tone and poor posture.
2. Increase the amount of breakfast. Explained that Bob's intake of energy was not equal to the outgo. Energy intake must exceed energy burned up if weight is to be gained and growth to occur. Bob therefore needs more food.
3. Improve quality of food as well as quantity. Add foods rich in vitamins and minerals. The family food is adequate but Bob needs to extend his food likes. Have a sandwich or some fruit ready for him in the afternoon instead of the candy or cookies. Too many sweets may have contributed to the carious teeth.
4. Don't discourage play with the older boys. Play with his brother and his friends is strenuous, but the doctor sees no reason for interfering

with this play provided Bob comes in early before supper so that he will have rest before the meal. This rest should help to improve his appetite. He explained the situation to Bob, trying to make clear the connection between rest, food, and elimination on the one hand and growth and physical strength on the other.

We see in Bob a boy who, when compared to the standard for children as a whole, is at or above the average for his birthday age in intellectual capacity, motor skills, and social interests. Some, at least, of his accomplishments in the latter two were achieved because of the drive to keep up with his older brother and the only play group available to him. There is clear evidence, however, that he is developing in these two fields (motor skills and social accomplishments) at a pace out of line with his normal potentialities. The strain is evidenced in his physical picture, since, although at the date of his physical examination he was tall for his age and of good weight for his height, his weight gain in light of his past record is not satisfactory. His school work as evidenced by his academic marks has not suffered as yet, but, thanks to the alertness of his teacher, his growing inability to make the best of the school situation has been detected and followed up.

Bob illustrates the need for everyone dealing with children to remain alert to signs of trouble in general development. Both his mother and his teacher were aware that all was not well; yet it took a cooperation between them to set the wheels in action for doing anything about the situation. Bob also illustrates the fact that, although his physical measurements, his intellectual capacity, his bodily and social skills all measured "favorable" on standardized scales, only a comparison of these measurements with his own past record revealed the fact that his growth was not progressing favorably.

QUESTIONS FOR CLASS STUDY

- I. Discuss possible sources in your community for obtaining information about children.
 1. How much will it be possible to visit public schools in your community:
To visit classes, playground and other activities?
To talk to teachers of given children?
To gain access to school records of a particular child?
 2. How much will it be possible to visit settlement houses, community centers, Sunday School classes, organized group activities such as Scouts, 4-H Clubs, etc.?
 3. How possible will it be to visit hospital clinics?
To see the children who are being served?
To get medical and psychological information?
To get home information from parents either through interviews at the clinic or through home visits?
 4. How possible will it be to take care of children of various ages in their homes and thus have an opportunity to observe children in their home setting?
- II. Discuss how to get this type of information without making children or their parents self-conscious. Discuss in class how a satisfactory approach may be made to parents in order to win their good will and cooperation. Study the following rules which should govern your observations:

1. An observation should be a fact-finding expedition only. It should never be regarded as an occasion for diagnosis of behavior.
 2. A student, while learning, is never in a position to give advice to parents, teachers or clinicians.
 3. Since the student is learning rather than serving, great care should be taken not to disturb situations or routines for children, parents, teachers or clinicians.*
 4. Before taking anyone's time (including the student's) for an observation, a careful plan should be worked out so that the student knows exactly what he is looking for.
 5. No public agency should be contacted excepting after official arrangement has been made by the instructor.
 6. It is imperative to maintain a professional attitude toward all facts learned about children and their families. Breach of confidence or a "gossipy" treatment of materials is highly unprofessional.
- Discuss other rules which should be followed.

III. Observe two children of the same chronological age in Junior or Senior High School, one of whom is large for his age and the other of whom is small for his age—in the classroom, on the playground, and in the lunch room (if there is one).

1. Are there physical differences other than size, e.g., do they differ in physical skills?
2. What are the differences in ability to accomplish work?
3. What are the differences in their behavior with other children?
4. What are the differences in the selection of food and the amount they eat?
5. As nearly as you can judge what are the differences in the way they feel about themselves?
6. To what extent can these differences be attributed to sheer physical factors?
7. Find out if you can what their twenty-four hour schedules are. Do they fit the physical and psychological needs of each? Suggest any desirable changes.

IV. Build a chart, like Fig. 10, using a keen intelligence as the central factor, in place of muscle tone. Chart possible contributing factors, as well as resultant factors.

V. Survey the Child Development literature of the past five years for case studies illustrating any of the principles of growth.

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* Bailey says: "The more carefully you study your information concerning this (or any other) youth, the more unwilling you will find yourself to 'prescribe' for him. You will feel that those who know him by daily association, perhaps from his birth, are so much better informed than you that any suggestion from you would be an impertinence."⁴

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2. INFLUENCES ON GROWTH:

Physical

The knowledge of growth would be meaningless without some understanding of the substances which go to make up the individual and the forces, within and without, which set the direction and pace for growth. Through knowing the factors which affect growth, adults can open the way to optimal development for children by providing satisfactory environment and guidance. In the following five chapters, therefore, we shall discuss the various influences upon growth. We shall begin with those within the child himself and move out to those which operate through his environment. Thus, we shall discuss some of the physical factors within the child, the emotions, and such typical environmental factors as nutrition, home, school and community influences. We shall begin with heredity.

HEREDITY

The moment of conception when the parent cells fuse and when, therefore, a unique biological pattern is fixed, is the most important moment in the life of a child. It is then that the length and breadth of his potentialities are set. To what extent and in what direction he will use these capacities will depend upon his environment. Certain potentials may be partially or entirely repressed. A potential genius may become a moron because of a birth injury. Early scarlet fever may have injured the heart of one who otherwise would have been an outstanding athlete. Thus, these two influences of heredity and environment are "so closely intertwined, their result so fully integrated, that one cannot be dealt with separately from the other."⁶¹⁴

The degree to which external environment can affect development depends, to a great extent, upon the genetic endowment of the child. Two children in the same environment may differ greatly in their use of it. For example, a musical environment may be very stimulating to a child whose pitch and time discrimination are sensitive and who is emotionally able to respond to music. On the other hand, the same environment may leave

another child untouched because he lacks these qualities. Some children are so deficient, as for example, in feeble-mindedness, that their surroundings can do relatively little for them. At the opposite end of the scale, a child with superior endowment may develop into a superior child in spite of a poor environment. "To him that hath shall be given" is indeed true. The child with superior genetic structure is more adaptable than one with inferior genetic structure. He can take and use what his environment offers more effectively than can the child with hereditary limitations. There is, therefore, in different children, a great series of grades of readiness to respond to favorable situations. Their response to unfavorable situations likewise varies.

In view of observed facts, there is no doubt that some individuals with certain genetic combinations are more liable to certain diseases, such as tuberculosis and diabetes or certain mental diseases. An individual who springs from a family in which there is a history of tuberculosis, diabetes or certain mental diseases is not necessarily doomed to have the disease. Tuberculosis is not an hereditary disease. Rather, it is caused by the tubercle bacillus. Whether an individual acquires the disease depends upon (1) exposure to the bacillus, (2) his genetic makeup, and (3) his health and nutrition. Some people inherit a high resistance; others inherit so little resistance that they cannot be protected by the best of environments; most people are in between. Diabetes, also, is not inherited as such but a predisposition to it can be transmitted. Whether diabetes develops depends partly upon diet and the physical conditions of life.* Certain types of mental illness develop because of the impact of a kind of environment upon a constitutionally weak nervous system. This was indicated during World War II when the stresses and strains of warfare were too much for some of the boys and they became mentally ill. It must be remembered that, on the other hand, there are certain types of exposure to nervous strain which will eventually break down the best psychological constitution. For example, the strains of combat flying in the war eventually produced nervous symptoms in even the best selected of the boys.

The environment, which includes habits of living, such as sleeping, eating, activity and adjustment to one's circumstances and to people, needs to be more carefully controlled for children with a family tendency toward a disease than for children from a healthy background. Children with constitutional weaknesses need particular help in recognizing their own needs and in assuming

* Some cases of diabetes are not caused by defective genes; some are due to disease or injury of the pancreas.

responsibility for living the kind of life compatible with their constitutions. They need also, of course, to be protected from undue fear of, or anxiety about, the disease.

How Heredity Operates. In the nucleus of the fertilized egg are found 48 units which comprise the heredity of the individual and in which lie his potentialities for development. These are the 48 chromosomes. These chromosomes are arranged in pairs, with twenty-four different kinds as to shape, size, etc. In each of these chromosomes there are a number of small substances, called genes, the bearers of heredity, which are arranged in a systematic way like beads on a string. Each gene has its own place in this chain; and each has its distinct function in inheritance.

Genes do not act independently; they cooperate one with another and with the environment to affect development. Each body characteristic, as for example, body build, requires the action of many genes. These genes affect one another, and in turn, are affected by the medium in which they exist. Genes are believed to operate in much the same fashion as enzymes in the digestive tract, namely, through influencing chemical processes. A chemical reaction is dependent not only upon the reactive substances, but also upon the solution in which they are placed. So it is with genes. They operate by interacting (1) one with another, (2) with the cytoplasm of the cell, (3) with the chemical products of gene activity and (4) with materials obtained from the environment outside the organism. In this complex organization the alteration of one gene may so disturb the reactions within the cell that the course of development of a particular trait may be changed. It may mean the difference between a genius and a moron. Modification or defectiveness of a part of the body may be due to modification or imperfection of the genes cooperating to produce that part. Such may be the case, for example, of an individual with extra fingers or toes, or of one with defective brain development resulting in feeble-mindedness.

Environment in Utero May Change the Course of Development Set by the Genes. It has been stated above that the immediate environment within the body influences the action of these hereditary units. The normal course of development as set by the genes can be altered by changes in the environment of the child in utero. Inadequacies in the maternal diet may alter the course of development. Also, a child whose mother has had German measles during the first two months of pregnancy is likely to have congenital malformations of eyes, ears or heart.^{232, 303} The virus evidently affects the young developing tissues of the brain, ear or heart. Such malformations, however, are rare. Yet

another example is that of the result of an incompatibility of an inherited factor in the blood of the mother and child called the Rh factors.* Some people inherit Rh factors from both parents; some from one parent and some inherit none. If a mother who has no Rh factor (Rh negative) has a baby who has the Rh factors (Rh positive), the substance from the baby stimulates the formation of a substance in the mother which in time may act upon the blood cells of the baby and prevent them from distributing oxygen as they should.† The child is, therefore, deprived of sufficient oxygen and thus development may be altered. Since the brain is especially sensitive to the lack of oxygen, mental deficiency might result if this should happen when the brain is in a critical stage of development.⁹¹⁴‡

A discussion of how the genes and their immediate environment in the cells interact, however, is beyond the scope of this book.§ We merely call attention to the fact that environment affects development even in the earliest stages of growth.

How the Child Receives His Inheritance. The child receives from his parents a uniquely new combination of parental genes, a combination of the genes which the parents themselves received when they were conceived (see Fig. 12). These genes are not changed by alterations in the body cells of the parents. The fact that a father has several college degrees in itself does not affect the mental equipment of his children. A mother who has been crippled by infantile paralysis will not necessarily produce crippled children. Becoming proficient in playing a musical instrument will not assure a parent that he will have a child with exceptional ability in music. One does not pass on an acquired appreciation of the beauties of nature or art through the germ cells.

Figure 12 shows that the child receives forty-eight chromosomes, half from each of his parents. The particular twenty-four chromo-

* Rh factors are substances in the blood so named because they were first discovered in the blood of a rhesus monkey. Later they were found to be present in the blood of 85 per cent of tested white people.⁸⁰⁷

† This seldom happens to a first child. In fact only one in 40 potentials develop it. The incidence among all births is 0.23 per cent.⁸⁰⁷ For further discussion see Corner,²³² Snyder.⁹¹⁴

‡ There is some evidence that the combination of an Rh negative mother and an Rh positive child occurs more frequently than chance would allow among mental defectives,⁹¹⁵ especially among undifferentiated mental defectives.¹⁰⁸² Snyder *et al.*⁹¹⁵ says that should this evidence that an appreciable amount of feeble-mindedness is caused by Rh immunization be verified, it would offer an explanation of the isolated cases of undifferentiated feeble-mindedness in highly intelligent families and also some instances where two feeble-minded parents produced normal offspring.

§ Students are referred to a discussion of the action of genes by Snyder.⁹¹⁴

EVERY MAN and EVERY WOMAN
At conception received
24 Chromosomes from each parent
or 48 in all

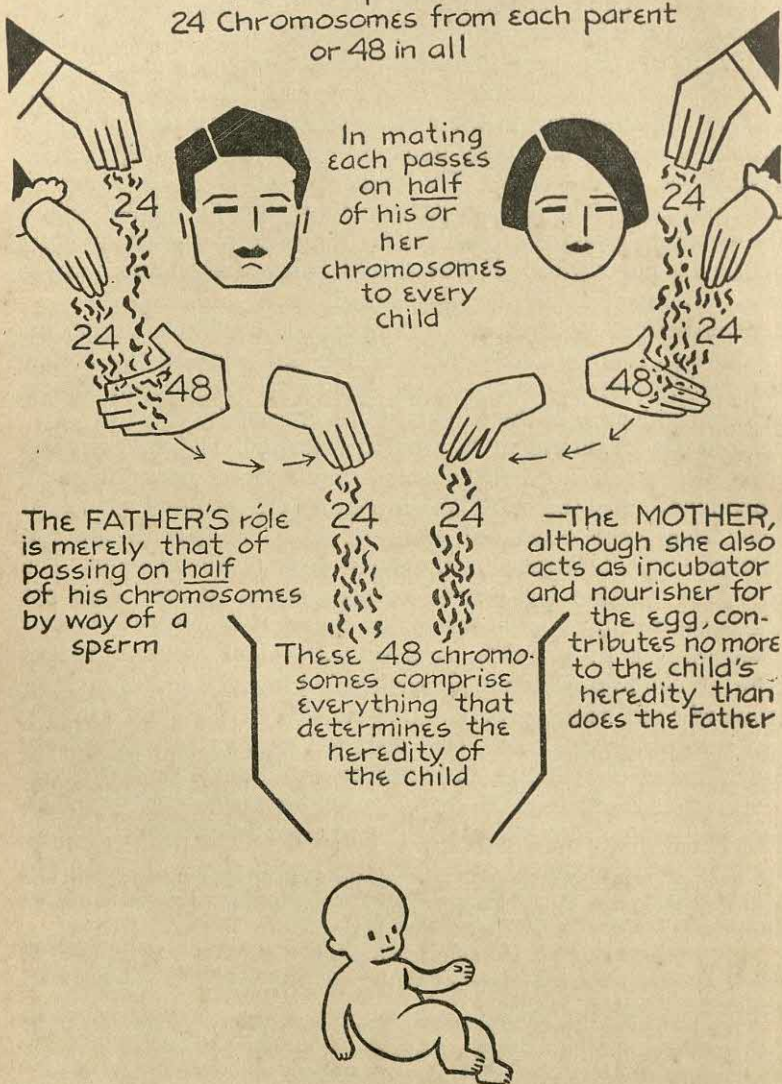


Fig. 12. The heredity process. (Scheinfeld: *You and Heredity*, 1939, Frederick A. Stokes Co.)

somes which he receives from either parent may come from either or both grandparents on that side of the family. The child,

therefore, may have certain traits in common with one or both of his parents; in others he may resemble one of his grandparents or he may be different from his immediate family. What he is like depends upon the particular assortment of chromosomes he receives. Because of the numerous possibilities of chromosome combinations it is not surprising that children of the same family are different, that one sister may be dark while another is blonde; that a brother may have curly hair while his sister's hair is straight. Only in the case of identical twins do children have the same genetic constitution and are therefore alike.

The matched chromosomes contain a series of genes. Each gene in one of a pair of chromosomes is paired with a gene in the other chromosome. These genes perform the same function either in a similar or dissimilar manner. If the genes in a pair are similar in their performance the characteristic influenced by them will appear, provided no other pair of genes interferes. If they are dissimilar the different influences of the two genes may blend to produce an intermediate characteristic or one gene may conceal the effect of the other. A stronger gene, which produces a characteristic in the presence of another gene, is said to be dominant; the concealed one, recessive. This recessive factor remains intact and may be passed on to a child in the next generation. If in the succeeding generation this recessive is paired with a like recessive, its influence will become evident.*

The particular combination of genes which a child receives is merely a matter of chance. There is no high degree of certainty, therefore, in predicting the characteristics of a child from knowledge of the family type. There is more certainty in predicting defects provided the nature of the transmission of the particular defect is known and a careful study of the family history is made.† The hereditary basis of many human characteristics‡ is known

* The probability of the appearance of a dominant or recessive trait in a family that carries that trait can be determined mathematically. See Sturtevant⁹⁷¹ or Snyder.⁹¹⁴

† Services for analyzing pedigrees are available in many places. Individuals can be given information regarding the possibility and probability of the appearance of certain undesirable traits in their children. For a discussion of techniques used in analyzing hereditary characters in man see Snyder.⁹¹⁴

‡ Genes may influence development directly or indirectly. A characteristic may be produced by the presence or absence of one or more genes, as we have pointed out. On the other hand genes may affect development indirectly by influencing the pattern of endocrine balance or by influencing metabolic processes. Snyder⁹¹⁴ reports that experiments indicate that a single gene difference may affect the basic metabolic activities. Ability or inability to synthesize certain vitamins may be due to differences in the genes. This may lead to the unraveling of the mystery of why individuals differ so much in their response to foods.

and new knowledge is being added rapidly. The type of inheritance discussed above is called Mendelian after Mendel who discovered it.

Some characteristics are associated with the sex of an individual. Of these there are sex-linked, sex-influenced, and sex-limited characters. Sex-linked characters, for example, color blindness and hemophilia, are produced by genes carried by the chromosomes responsible for determining sex. Such characters appear more often in men than in women.* They rarely appear in both father and son. They are transmitted from a man through his daughter to some of her sons. According to the law of averages there is a fifty-fifty chance that a grandson (daughter's son) of a man having hemophilia or color blindness would have this characteristic, but none of his sons' sons would have it. In a large number of cases this ratio would be true, but it does not necessarily hold in a single family. For example, if a color-blind man has two grandsons (daughter's sons), the grandsons may be (1) both color-blind, (2) both normal or (3) one color-blind and one normal. Sex-influenced characters are those in which dominance is influenced by sex. Hereditary baldness, an example of such a character, is dominant in man and recessive in women. Sex-limited characteristics are those capable of expression in one sex but not in the other. These are the secondary sex characteristics which are controlled by the secretion of endocrine glands.

Characteristics Influenced by Heredity. As has been said before, heredity and environment cannot be separated. However, there are gradations in the relative influence of the two factors. Certain characteristics can be attributed to hereditary almost exclusively. In such instances genes will produce a definite characteristic regardless of differences in the environment.† Other characteristics are the resultant of the two forces operating together with the strength of each factor varying in individual cases. Yet again, others can be attributed primarily to heredity in one set of circumstances and to environment in another.

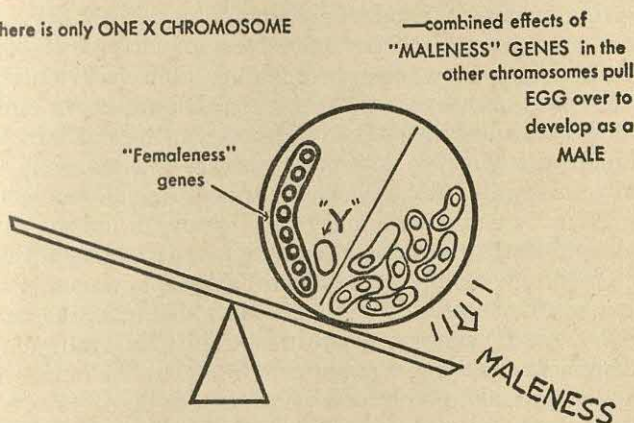
Sex of the child is basically determined by the genes of a special pair of chromosomes. In the female the two chromosomes are alike (XX); in the male they are different (XY). Every ovum that is ready to be fertilized contains one X. Some sperms contain X; some sperms contain Y. If an X-bearing sperm fertilizes the ovum, the new organism will be a girl. If a Y-bearing sperm fertilizes the ovum, the new organism will be a boy. It is, there-

* Color blindness, for example, occurs in one out of ten or twelve boys and about one in one hundred girls. Hemophilia is practically unknown in women.

† An example is migraine headache.⁹¹⁴

fore, the father who unwittingly determines whether his child will be a girl or a boy. Sex determination is a matter of balance between these sex genes carried in the X chromosome and sex-influencing genes that are distributed among the other chromosomes. The genes outside the sex chromosomes are slanted in the direction of maleness; the genes in the X chromosome are

1. Where there is only ONE X CHROMOSOME



2. Where there are TWO X CHROMOSOMES their gene together outweigh the maleness genes in the other chromosomes, and pull the egg over to develop as a FEMALE

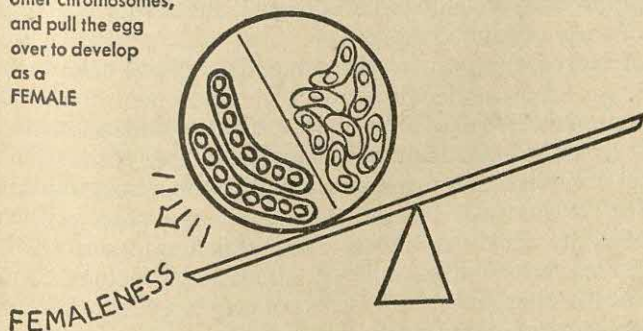


Fig. 13. The "sex-gene" balance. (Scheinfeld, "Women and Men," Harcourt, Brace and Co.)

slanted in the direction of femaleness. In the case of the fertilized ovum with only one X chromosome the pull is toward the development of a male; in the case of the fertilized ovum with two X chromosomes, the pull is toward the development of a female. (See Figure 13.) Sometimes this sex balance is upset by defective, weakened or injured genes in which case defective sexing results.

The characteristics which are accepted as due almost exclusively to heredity are color of eyes and hair, blood types, form of features, structure of body and many physical peculiarities. Differences in health and vigor, mentality, behavior, susceptibility and immunity to various diseases including dental caries, color of skin, stoutness or slenderness are considered to be due either to a goodly portion of both or a relatively small dose of heredity and a large dose of environment. They have been found to be the traits more readily affected by their surroundings than those enumerated as due almost exclusively to heredity. While we never inherit criminality as a full-fledged behavior pattern, life patterns are set by heredity that help to determine whether behavior will be "social" or "anti-social." Some people become criminals not because of a particularly bad environment, but because of internal instabilities that prevent a person from making a satisfactory adjustment to the requirements of life. Most criminality, however, is thought to be environmentally determined. Most diseases, like tuberculosis, have a genetic component of susceptibility, and a large nongenetic component involving environmental factors. The fact that a child can be immune to diphtheria because he is born that way, as some children are, or because he has been immunized by toxoid, illustrates the fact that the same characteristic in different people may be due to genetic or to environmental force. Another example is feeble-mindedness, which can be inherited, the result of a birth injury or of early childhood disease.

Effect of Heredity upon Intelligence. There have been many studies of the effect of heredity and of environment upon the development of intelligence and personality. Newman et al.⁷⁴² studied fifty pairs of identical twins reared separately, fifty pairs of identical twins reared together, and fifty pairs of fraternal (nonidentical) twins reared together. They found that environment profoundly modifies those characteristics described as intelligence, as personality, and as educational achievement. They concluded that physical characteristics* are least affected by environment and most affected by heredity; that environment affects intelligence more; educational achievement still more; and personality or temperament the most. These and other studies^{1002a} clarified for the time being a long-standing issue between proponents of the importance of heredity and those of the importance of environment. However, the controversy broke out again in 1937-1939 in a heated discussion about the effect of nursery school education upon the intelligence quotient (supposedly a

* Such as eye color, hair color, teeth, features, etc., but not weight and general health.

measure of functioning intellectual capacity).^{71, 237, 392, 739, 901, 902, 905} The same conclusions as before, however, have resulted, namely, that both heredity and environment are of great importance in determining the development of intelligence.*

It is evident as far as intelligence is concerned that heredity seems to set the stage for the major level of intelligence. An idiot cannot be made normal, although his functioning level can be improved. A low normal cannot be trained into a genius. The greatest I.Q. gains recorded in any study are in the neighborhood of 20 to 30 points. This is of great significance, since it can mean all the difference between successful functioning in life and failure. But if one sets these changes in terms of 100 I.Q. as average, even a change of 30 points still leaves 70 points which heredity claims for its own.

Effect of Heredity upon Personality Development. Studies of the inheritance of mental diseases^{58, 566, 700, 804, 914} reveal a situation very much like that in physical disease. Some predisposition to given mental illnesses may be inherited, but whether or not any given offspring will develop the disease will depend upon the type of training and experience he has. We now have a number of studies (which will be reviewed in later chapters) to indicate that personality traits can be basically changed under certain conditions of experience and special training. Especially in the early years of life is the effect of environment upon personality characteristics, skills, habits and attitudes as well as upon the deeper lying emotional motivations to behavior clearly apparent.

Implications of Heredity for Child Development. Earlier we discussed the importance of recognizing individual differences in children in planning for them as individuals and in groups. In this chapter we have seen that the interplay of heredity and environment produces these differences. A look at heredity offers us an explanation for children's selective response to their environment. All children have certain needs for growth. All children do not meet these needs in the same way. Children will differ in the kinds and amounts of food they need for optimal growth.

* Goodenough³⁹² in reviewing the effects of these controversies says that in so far as they have placed a greater emphasis upon the need for providing for every child suitable opportunity to develop in healthy ways of behaving, of giving food for the mind as well as for the body, the effect upon those who are charged with the rearing of children should be favorable. Even the errors of experimental technic may serve a valuable end if, as is to be hoped, they serve to call the attention of others to the need for stopping all possible gaps in the conduct of an investigation, in order that the conclusions, which finally emerge, will bear the impress of sound authority.

They will differ in sleep and activity requirements and in sensitivity to emotional stimuli. There can, therefore, be no standardized program for children in the home or school. It is to be remembered that children in the same family do not generally have exactly the same genetic makeup, so their response to the same environment will differ. Also the environment for each child in the family will be somewhat different, either because of time and the changes which come with it, or differences in relationships.

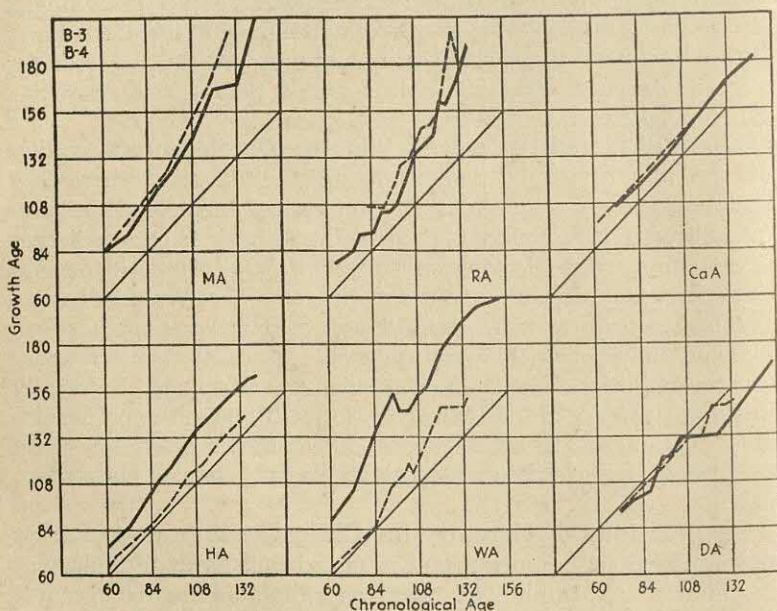


Fig. 14. Similarities in level and pattern of growth in male siblings born thirty-three months apart.

MA.. Mental Age

HA.. Height Age

RA.. Reading Age

WA.. Weight Age

CaA.. Carpal Age

DA.. Dental Age

(From Olson, W. C., and B. O. Hughes: *Growth of the Child as a Whole* in Barker, R. G., J. S. Kounin and H. F. Wright: *Child Behavior and Development*. McGraw-Hill Book Co., Inc., New York, 1943, p. 207.)

Knowledge of the family background with its assets and liabilities may allay unnecessary fears on the one hand, and give a realistic approach to possible difficulties on the other. Knowledge of possible potentialities will help parents to plan intelligently for their children.

Checking on the hereditary ledger should not result in a *laissez-faire* policy. It gives one a basis on which to operate. Environment

is a strong factor to be remembered. As Todd once said, "The adult physical pattern is the outcome of growth along lines determined by heredity but enhanced, dwarfed, warped, or mutilated in its expression by the influence of environment in the adventure of life."¹⁰⁰⁹ The same can be said for psychological growth.

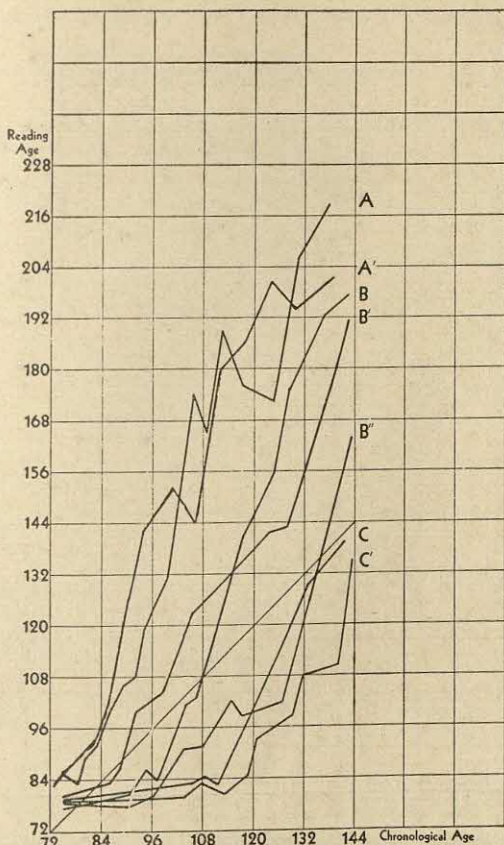


Fig. 15. Growth curves showing familial resemblance in Reading Age for children of three families. Compare A with A'; B, B' and B'', and C with C'. (From Olson, W. C., and B. O. Hughes: *Concepts of Growth—Their Significance to Teachers*. Child. Educ., Oct., 1944, p. 8.)

Growth Patterns in Families Reflect the Interaction of Heredity and Environment. Various longitudinal growth studies* provide evidence that children of the same family tend to show a notable similarity in their patterns of growth. Figure 14 shows

* Studies at the University of Michigan, Fels Institute for Research, and Brush Foundation.

the similarities in the levels and growth pattern in mental age, reading age, carpal age, height age, weight age and dental age of two brothers born thirty-three months apart. The authors call attention to the striking dip in weight near eight years of age for both boys.

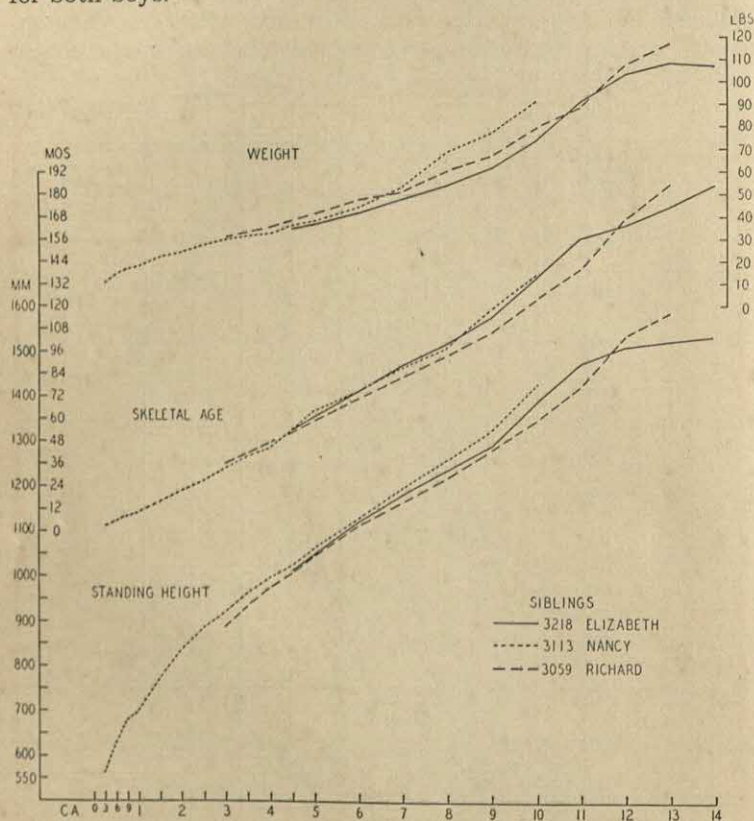


Fig. 16. Standing height, weight and skeletal age of three siblings, No. 3218, No. 3113, and No. 3059. (Simmons and Greulich: *Jour. of Pediatrics* Vol. 22, 1943.)

Olson and Hughes⁷⁵⁷ have studied the growth curves in reading for forty-six pairs of siblings. The growth curves in Figure 15 are samples of sibling curves which represent high, intermediate and low achievement. A and A' are brothers born twenty-five months apart. B, B' and B'' are three brothers born at intervals of twenty-seven and twenty-five months and C and C' are brothers born at an interval of thirty-six months apart. Their reading ages

are plotted against their chronological ages. The rate and level of achievement for A and A' and C and C' are strikingly similar. B and B' cling together but B'' drops behind for several years. However, he is approaching them toward the end of the record.

In physical growth there also is evidence of similarities in families. Similar growth patterns in height,¹⁰⁷ in bone development⁸²⁹ and in tooth decay,⁵⁸⁷ and similar speed of maturing⁴⁰⁰

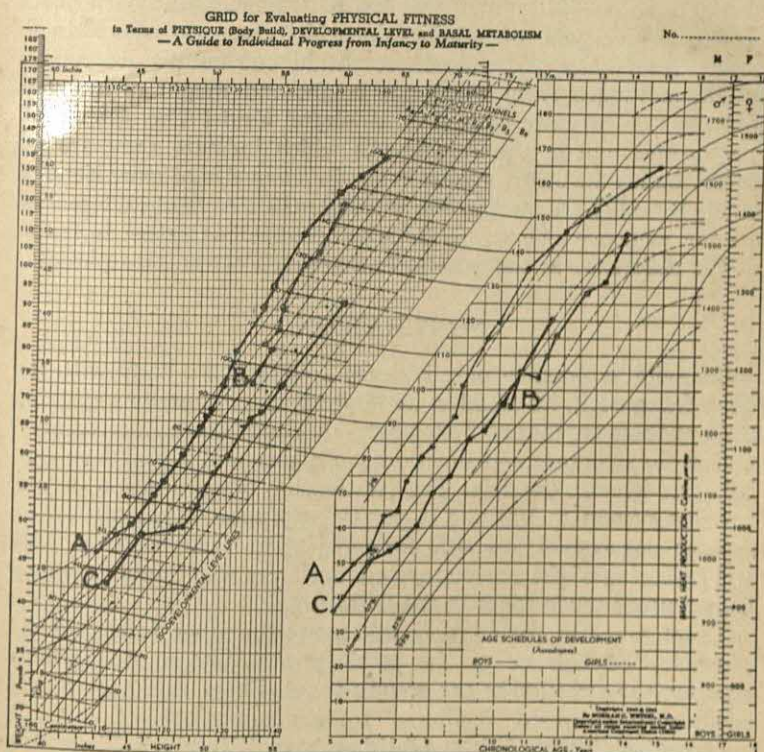


Fig. 17. The Wetzel Grid curves of a sister and two brothers showing similarities and differences in the pattern of growth of the children in a family.

have been seen in families. There are slow-maturing and fast-maturing families. Simmons and Greulich⁸⁹⁷ contrast two sets of brothers and sisters, one illustrating an early-maturing pattern and one a late-maturing pattern. The early-maturing pattern* is reproduced here in Figure 16.

* Evidence of early maturation: E menstruated at ten years, five months; R had his prepuberal spurt of growth before twelve years; N had marked increase in rate of growth before ten years of age.

Knowing the father and mother of a child may help in the interpretation of his health status and growth.^{831a} There are some children who, in spite of the best environments, are underweight, perhaps have poor muscular tone or are just "not robust." When such a child is seen with his parents he may be recognized as a "chip off the old block."*

Even though there are great similarities in families, there are also differences. All families will not have one specific pattern of growth. There will be families in which vast differences will occur. Similarities and differences within one family are represented in Figure 17 in which the height and weight of a sister and two brothers are plotted on a Wetzel Grid.[†] The sister and one brother fall in the A channels which indicate they are of stocky build; the other brother in the B₁ channel is of more slender build. B and C are on a slower schedule than A. Such differences are not evidence against the force of heredity but rather in favor of the difference in the genetic backgrounds of the two parents.

MATURATION

Behavior is possible only because a child has a body with its bony framework, its muscles, its vital organs, its nervous system. Only as these organs and systems develop and become increasingly mature in structure and function can higher and higher levels of behavior become possible. The relationship of maturation of the nervous system to learning is particularly close. Hidden deep in the nervous system, yet vital for capacity to learn, is the growth and maturing of the nervous system itself. Its effect upon learning has occupied much space in the literature.

There are also within the child powerful inner forces which preserve the balance of the total growth pattern and which regulate the direction of the growth trend. These are forces which produce the so-called "readiness" to learn and to act.

Learning Easier When Children Are "Ready." There are many studies which indicate that most forms of learning cannot take place until children are "ready" both in general bodily development of muscles, nerves, and physical proportions, and in interest and willingness to learn. The majority of these studies in the child development field[‡] are in motor learnings, although a few concern the learning of language, of academic skills and of social skills. Many more of them have been done with very young

* For further discussion see Reynolds and Sontag.^{831a}

† For discussion of the Wetzel Grid see Chapter 7.

‡ For an excellent discussion of maturation in behavior see McGraw.^{659, 660, 661}

children than with older children, probably because progress in learning is rapid and, therefore, easily observed at this level.

Shirley,⁸⁹⁰ in an intensive study of the development of twenty-five babies, found that children, in learning to walk, follow a definite pattern of development which cannot be materially speeded by coaching or urging.

Gesell and Thompson³⁷⁹ studied several pairs of identical twins using the co-twin control technic. This meant coaching one twin in stair climbing and manual manipulation, while leaving the other twin without training during the experimental period. Later, the deprived twin was given opportunity to learn the same skills. They found that the coached twin was somewhat superior during the coaching period, but that, with brief training at a later maturational level, the other twin soon caught up. They concluded that factors of maturation are of more importance than coaching, at least within the limits of this study.

McGraw⁶⁵⁹ chose a pair of twin infants for experimentation, coaching Johnny intensively in a number of motor performances, while leaving Jimmy without much training. Johnny learned to roller-skate soon after learning to walk; he could execute spectacular feats of climbing up a steeply inclined board, of getting onto and off from high places. His "pattern" of learning followed that of most children, but progressed more rapidly under the intensive training. One thing he failed to master. He could not learn to ride a tricycle before the age when most children do, and when he did finally learn, seemed to suffer somewhat from the long and futile practice undertaken earlier. The twins were, however, similar in the developments leading to the ability to walk alone. Jimmy, when later exposed to practice in the stunts of roller-skating and climbing almost, but not quite, caught up to Johnny; he seemed to learn to ride the tricycle more easily. Four years later, Johnny remained superior in climbing the inclined plank and in climbing upon and retaining balance in high places; both children relearned riding a tricycle quickly, having had no intervening practice; both had lost most of the roller-skating skill. This evidence would seem to indicate that, whenever maturation or development of the nerves and muscles is adequate to the learning involved, children can be coached somewhat successfully, but with the usual losses when practice is not kept up. Specific, intensive training, however, hardly seems worth the effort, either in time put in or in discipline necessary to force a child beyond the point where he can willingly follow.

Environmental Opportunity Also Important. Deprivations of opportunity to learn what the child may, by maturation, be

ready to learn, require further consideration. It is one thing to force a child beyond his natural capacity. We have seen that, in certain areas, this can be done, but without very lasting results and without any marked superiority over the skills other children can achieve with much less effort a short time later. We must not come to the conclusion, however, that children will learn without teaching whenever they are ready. Sterile environments and restrictions upon normal learning experiences may prove detrimental to learning. William James⁵⁰⁶ insisted as early as 1890 that, unless one strikes in education "when the iron is hot," the urge to learn any given skill may cool, with the result that extra effort and training will be necessary later. We have only a few experiments in the field of child development to corroborate or to refute this, although the literature of educational psychology has many experiments which deal with problems of learning and motivation.

Dennis²⁶² offers a study of seven months of restricted environment for a pair of infants. These babies, in spite of the lack of specific opportunity to learn, seemed to develop in most motor capacities according to the normal standards. This seemed true of the social development as well, since, in spite of a "dead pan" approach by the attendants, these babies laughed and cooed and made "social" advances. Dennis concludes that the impulse to grow is strong, that behavior mechanisms mature, and that these children, in spite of lack of encouragement, found means of exercising their abilities.

Benezet⁸³ tried postponing many of the formal operations in arithmetic until the sixth or seventh grades, far beyond the grade in which they are now usually taught. These fundamentals were readily mastered when presented at the later age level. This recalls to mind the position which educators such as Dewey took early in the century, when they maintained that, if one waited for maturational development to occur, learning could be done with far less waste of effort. Several educational groups tried keeping children out of the formal school room until they were ten or twelve years old, then found that the basic fundamentals of the tool subjects (reading, writing, arithmetic) could be learned in two or three years instead of the usual eight grades. Meanwhile, it was maintained, the children had the extra five or six years for physical development and free social learnings. Many of the maturation studies would lead us to review this idea favorably again, since they seem to indicate that learning can be accomplished with less effort if somewhat delayed.

A number of factors, however, need to be considered. One of

the reasons for the failure of the early educational experiments, which kept children from school work until ten or twelve, was that most children in our culture do go to school at five or six. Children of eight or ten who cannot read or write or add at all develop feelings of inferiority in the face of the mass of children who can. Unless we can keep all children from reading until a later age, or unless we can keep the children who cannot read isolated from those who can, the ones who cannot seem to feel different and less adequate. This sometimes leads to emotional blockings which prevent learning at the desired speed, once the child is given lessons.

It might be possible to consider the idea of subjecting no child to academic learnings until he is ten or twelve. This has been seriously considered earlier in our United States educational history. However, in modern living, with little opportunity for constructive work available as it once was in normal family activities, children would, without school activities, be too long delaying one of life's most valuable lessons, namely, learning how to work. Particularly in cities, where constructive play opportunities are likely to be limited, children might, as they enter the gang age and find an urgent need for group activities, develop delinquent behavior. It seems better to have them spending an appreciable amount of their waking time under some sort of supervision. This seems best offered through school programs in the winter and camp or playground opportunities in the summer. Only time can tell whether further controlled studies will suggest a universal change in early elementary school programs.

ENDOCRINES AND THEIR RELATION TO GROWTH

Do Glands Affect Growth and Personality? Much has been written about how our glands control or regulate our lives. The reader who has no real knowledge of what actually happens may easily believe from popularized books and articles that we are entirely the victims of our glands, and that education or training of character and personality is futile. This is, of course, far from the truth. Although the endocrine glands do have a definite effect upon the development of a child physically, mentally and emotionally, the effect is one which not only leaves room for training, but which is also subject to some degree of medical control. People who expect to work with children should know what the effect of these glands is.

What the Glands Are and How They Function in General. The endocrine, or ductless, glands are widely distributed throughout the body, and differ from each other in their structure and in

the nature of their secretions. The organs which are known to have endocrine function are the pituitary, thyroid, parathyroids, adrenals, pancreas, stomach and intestines, ovaries and testes. The pineal body,* thymus, liver and spleen also may have endocrine functions, although further investigation is necessary before definite claims can be made.

The endocrine glands affect development through the secretion of substances, called hormones, which are synthesized from chemicals in the blood, are liberated directly into the blood stream (hence the term "ductless") and are carried to all parts of the body where they serve to excite or inhibit bodily processes. Their relative importance cannot be measured either in terms of the size of the gland or the amount of its secretion, both of which are relatively small when compared with other organs and their products.†

These hormones act as regulatory agents for various bodily functions. Thus the growth hormone of the pituitary gland influences the growth of the skeleton and connective tissues; thyroxin regulates the rate of metabolism; the hormones of the gonads or sex glands influence sexual development and are associated with the changes taking place at pubescence. These glands regulate a diversity of functions such as the rate at which a person grows or the amount of water excreted by the kidneys. They even regulate one another. The activity of one is affected by the secretion of another, and thus a deficiency of one gland is reflected in the performance of another. Animal experiments have demonstrated that the removal of the thyroid is followed by an enlargement of the pituitary. If the pituitary is destroyed, the activity of the thyroid is diminished. Such interrelationships between endocrines complicate the problem of attempting to evaluate the effect of specific secretions on growth and development.

Differences in the amount of hormone secreted and differences in the response to these substances produce diverse patterns of bodily function and development. An individual may have too little, too much, or a normal amount of a particular hormone. Thus, there is a possibility of three functional patterns being produced by each hormone. In the case of the pituitary, too little growth hormone may produce dwarfism; too much may result in gigantism; a normal level of secretion will make for normal

* An endocrine function of the pineal gland has been postulated by some writers, since tumors of this gland have been found to be associated sometimes with sexual precocity and accelerated growth.

† Normally, the thyroxin output of the thyroid gland in man is only about 1 mg. in three days although its influence is great.⁴⁸⁹

growth. Just how far the differences in growth within the range of normality can be attributed to differences in endocrine function cannot be determined at present.

Pituitary Gland. The pituitary gland is a small gland about the size of a large pea and weighs about one fifth as much as a

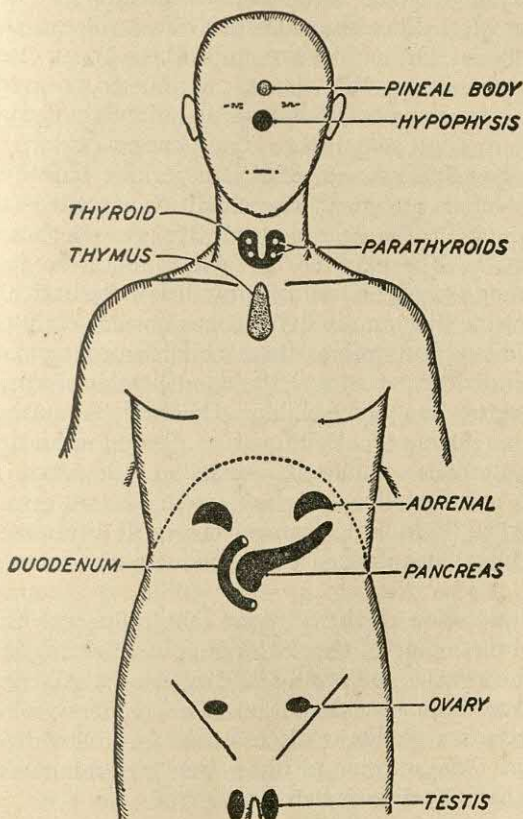


Fig. 18. Locations of the glands of internal secretion. It is uncertain whether the pineal body or thymus are endocrine glands. The liver (perhaps a gland of internal secretion) and the stomach (which secretes gastrin into the blood) are not shown. (Carlson-Johnson: *The Machinery of the Body*, The University of Chicago Press.)

five cent piece. It is attached to the base of the brain and consists of two parts, the glandular anterior portion and the posterior neural portion. This gland profoundly influences growth, sexual development and the metabolism of three principal foodstuffs, namely, proteins, carbohydrates and fats. By its influences upon

nutrition it affects all the exchanges of energy that go to make up life.

The anterior lobe produces a secretion which contains several hormones. The growth-promoting hormone regulates body growth. If there is an excess of this hormone during the growing years, an individual may come to be a giant, attaining a height of as much as 8 or 9 feet. Excessive tallness is due to the excessive growth of the long bones. Ordinarily, growth in these bones ceases around puberty but, in giants, these bones continue to grow for a longer time. If the excessive secretion occurs after the growing years (about twenty-five years) the bones cannot grow longer but become coarser and heavier. This is especially true of the bones of the jaw, hands and feet. The condition is called acromegaly.

A deficiency in the secretion of this growth hormone suppresses growth. The extreme of such a condition is dwarfism. The beginning of retardation of growth is noted within the first few years of life. Such an individual has normal body proportions during childhood but retains these childish proportions; the features are immature; the skeleton is delicately formed and retarded in maturation. Some children thus affected mature sexually, while others remain sexually immature. Sexual immaturity occurs when the hormones influencing sexual development as well as the growth hormones have been affected. Mental development is usually normal.³³⁰ Indeed, some of the most brilliant characters in history have been undersized individuals who were technically dwarfs.

Another secretion of the anterior lobe influences the development and functioning of the sex organs by affecting the development of the ovaries and testes and inciting the series of cyclic changes involved in menstruation. The influence of these hormones on the sex glands is discussed in the following section on Sex Glands. The anterior pituitary has several other functions which we shall not discuss here.

The posterior lobe influences water metabolism, increases the concentration of urine, and causes contraction of all involuntary muscles including those of the blood vessels, intestines and uterus.

In general, we can say that:

The pituitary gland acts as a presiding genius over the thyroid, adrenals, and sex glands, and over growth, development and metabolic control. It plays a leading part in bringing about the changes which occur in the body at the time of puberty.⁹⁶⁶

Sex Glands or Gonads. The sex glands consist of the testes in the male and the ovaries in the female. These glands produce

the germ cells plus internal secretions, and thus play a dual role in influencing the growth and development of the individual. The male sex hormones* and the female sex hormones are responsible for bringing about the changes characteristic of pubescence. The male hormones stimulate the growth and development of the male genital organs and the secondary sex characteristics, such as growth of the beard and deepening of the voice. Secretion of the male hormone has no cyclic variations. The ovarian hormones, in the girl, stimulate the growth of the breast, the uterus, fallopian tubes, the vagina and the various secondary sex characteristics, such as the broadening of the hips and appearance of pubic and axillary hair, and are responsible for menstruation. Unlike the male, the female hormones are secreted in a periodic cycle, commonly termed the menstrual cycle.† With the development of these gonads and the accompanying increased liberation of the sex hormones into the blood stream an arousing of sex behavior can be expected.‡ The many physiological changes in boys and girls due to gonadal development have many accompanying psychological changes, which will be discussed later.

The presence of a sufficient quantity of these sex hormones is necessary to stop growth in height at the proper time. If the testes and ovaries mature early and produce their secretions too soon, growth is prematurely arrested, and the child is abnormally short at maturity.§ Excessive secretion in early childhood produces precocious puberty. If, however, adequate production of the sex hormones is unduly delayed, growth, especially that of the arms and legs, continues longer than would be expected, and the individual becomes quite tall with disproportionately long arms and legs. The development of the sex organs and the appearance of the secondary sex characteristics are also delayed.

Some study has been made of the changes in the excretions of the sex hormones in boys and girls with age.^{411, 729, 748} There is indication to show that before eleven or twelve years of age both boys and girls excrete measurable amounts of both male

* Male sex hormones are called androgens; female sex hormones are estrogens and progestin.

† For a discussion of the function of hormones in producing the periodic changes including menstruation see Warkany.¹⁰⁸⁸

‡ There are no extensive, controlled experiments with human beings of the relation between blood levels of sex hormones and sex behavior, but some observations have been made.⁸⁹¹

§ Shortness is not always due to an endocrine disturbance.

|| Excretion of sex hormones in the urine rather than the amount in the blood was studied because of the difficulty in devising methods to ascertain the small amounts in the blood.

and female hormones. Slightly greater amounts of female sex hormone are excreted by girls, and slightly greater amount of male hormone by boys. After eleven years of age the difference between the excretory pattern of sex hormones of boys and girls becomes noticeable. At that time the girls show a marked increase in the female sex hormone. Later, after twelve years, the boys, likewise, show a marked increase in the male hormone. This is interesting in relation to the widening differences noted between boys and girls during pubescence.

Interaction of the Pituitary and Gonads in Growth and Development. It is evident from earlier discussions that both the pituitary gland and the gonads have functions to perform in relation to growth. They operate not only alone but together. Normal growth and development depends upon the reciprocal and properly timed action of these glands. Just before puberty the gonad stimulating hormone of the pituitary begins to be secreted in large enough quantities to cause the immature gonads to develop into mature ovaries and testes. As these gonads mature they begin to secrete hormones which stimulate the development of the reproductive organs and secondary sex characteristics. At the same time these hormones inhibit the growth-promoting hormones of the pituitary and eventually stop its action. Thus, the interaction of these hormones is responsible for the change during pubescence and the subsequent cessation of growth. An inadequate amount of the gonad-stimulating hormone in preadolescence prevents normal development of the sex glands and indirectly that of other reproductive organs. When this happens the reproductive organs remain in an infantile state and the secondary sex characteristics fail to develop properly. Conversely, an excessive amount of this hormone produces a type of precocious sexual development. The gonad-stimulating hormone continues to be important since it is necessary for the regular functioning of the sex organs throughout the individual's reproductive life.

Thyroid. The thyroid gland consisting of two lobes connected by a narrow strip, is situated in the front of the neck and secretes a hormone which regulates the rate of oxidation in the body and, therefore, is related to cellular activity. The activity of the thyroid influences the rate of growth, the development of the bones, the nervous system, circulation, muscles and, in conjunction with pituitary and gonads, the functioning of the reproductive organs. It also affects the rate at which food stuffs are utilized for body maintenance and growth.

A decrease in the thyroid function, called hypothyroidism, results in a decrease of tissue activity. The absence or degener-

ation of the thyroid gland in uterine life or early infancy results in cretinism, a condition of dwarfism different from that caused by pituitary dysfunction already discussed. In this condition bone development is retarded so that union of the epiphyses with the shaft of the bones is delayed, and some growth may occur as late as the fortieth year if thyroid is administered medically. The muscles of cretins are flaccid, and the maladjustments of the neuromuscular system are evidenced by marked apathy, defective speech, clumsy gait and incontinence. Dentition is delayed. Sexual maturation is delayed or does not take place at all. The skin is thick and dry; the hair is sparse; the nails are thin and brittle. The tongue is large and protruding. The cretin is pale and anemic, has a low basal metabolic rate and a lowered body temperature. In most cases intelligence is seriously retarded and attention is dulled. Movements are slow and awkward, and the impression is that of a radically retarded intellectual functioning.

If the administration of thyroid is begun early in infancy and continued uninterruptedly, the chances for approximately normal physical growth and development are good. The mental development, however, is often not so satisfactory. Mental development usually will remain somewhat retarded because of damage done to the brain during embryonic life and early infancy.*

Johnston⁵³⁹ states that some degree of hypothyroidism is fairly common around puberty.† Many girls who have just begun to menstruate have been referred to him because their schoolwork was unsatisfactory. Their symptoms, those of hypothyroidism, were delay in growth and development, mental retardation, fatigue and menstrual disorders. After treatment an increased attention span was noted. It would be wise to check the functioning of the thyroid gland in adolescents of the so-called lazy group.

An excess in thyroid function called hyperthyroidism, is characteristic of one type of goiter. It is rarely found in childhood for it is usually noticed for the first time after puberty.

Another type of goiter, namely simple goiter, occurs in childhood and is noted particularly in adolescents. This type is a deficiency disease generally recognized as being caused by a lack of iodine in the diet. In certain regions of the world the incidence of this type of goiter is relatively high. Such regions in North America are in the basin of the St. Lawrence River and the Great

* For further discussion of the mental development of hypothyroids see Gesell³⁷⁶ and Bruch and McCune.¹⁵³

† The high incidence may be due in part to the fact that the observations were made in Michigan where iodine is low in the water supply.

Lakes, in the Pacific Northwest and the great plains. In these areas the iodine content of the water and soil is so low that some source of iodine other than food and water has to be found to satisfy the body's need for this substance. Michigan, which is one of the states in such a region, at one time had a high percentage of school children with goiters. In 1924, of 31,612 boys and girls examined, 47.2 per cent were found to have simple goiter. Iodized salt was introduced throughout the state, and the subsequent surveys showed a spectacular reduction in goiter. Between 1928 and 1938 the number of children showing enlarged thyroids dropped about two-thirds.* The Detroit Department of Health recommends the use of iodized salt in this area in all families in which there are young children.

The Council on Foods of the American Medical Association states that the prevention of goiter is a nutritional problem and that table salt containing not more than 1 part iodides per 5000 parts of salt may be considered as prophylactic. It maintains that the prevention of goiter and iodine deficiency is an educational problem while its cure is a medical one.

The Parathyroids. The parathyroids, four in number, are small glands adjacent to the thyroid gland. Their secretion regulates calcium and phosphorus metabolism. Because of its relationship to calcium metabolism, this secretion plays an important role in maintaining the nervous system in a state of optimal reactivity and in influencing the response of the muscles to stimulation. An insufficiency of parathyroid hormone results in a reduction of calcium content of the blood, thus limiting the calcium available to bone formation, and in extreme cases may produce tetany. Tetany is characterized by an abnormally increased reaction of the nervous system to external stimuli which results in painful muscle spasms. Overactivity of these glands causes calcium to be withdrawn from the bones, making them soft so that they bend and become deformed. The bones fracture easily; muscles lose their tone. Disturbances are also noted in the functioning of the nervous system. These extreme conditions, fortunately, are rarely found in children.

Adrenal Glands. The adrenals are paired organs located on top of the kidneys. They consist of two parts: the cortex (outer portion) and the medulla (inner portion), which differ in their embryonic origin and in their functions. The cortex is formed from the same embryonic tissue as the reproductive organs. The medulla has its origin in common with that of the sympathetic nervous system.

* Detroit Board of Health Report, Oct., 1939.

The cortex, indispensable to life, secretes a hormone or hormones which influence many important functions including carbohydrate metabolism, muscular efficiency and reproductive function. New effects of its products are being discovered constantly.

The secretion of the medulla (called epinephrine) reinforces the sympathetic nervous system as a means by which the body adapts itself to meet the demands of life's sudden stresses. Under conditions of violent emotion the heart beats faster, blood pressure is raised, digestion stops. Epinephrine places a part in these physiological changes. It releases sugar from the glycogen stored in the liver, thus preventing fatigue of heart and skeletal muscle. It dilates the air passages in the lungs so that more oxygen may be available, and it increases the blood supply to the muscles. Thus the body is made ready for vigorous physical action under fear, anger or other emotions (see Chapter 3).

Pancreas. The pancreas is a gland of both external and internal secretion. It is a part of the digestive tract in that it secretes a substance necessary for the digestion of foods and pours it through a duct into the intestine. In addition, scattered throughout the gland, are clusters of cells (known as the Islets of Langerhans) which produce a secretion poured directly into the blood and which regulates the use of sugar by the body. The hormone produced is called insulin. When inadequate amounts of insulin are produced, carbohydrate metabolism is disturbed. There is a rise in blood sugar, sugar appears in the urine, and the condition known as diabetes mellitus results. This condition can be treated by regulated doses of insulin.

Hormones of the Gastro-Intestinal Tract. These hormones have local effects upon the digestive tract rather than the more basic and generalized actions of the other hormones. Because of their very indirect relation to growth, they are not discussed here.

The Relationship of Endocrines to Behavior. Because of the very potency of endocrine secretions they are often looked upon as having a potent effect on behavior. Many exaggerated claims, which cannot be confirmed by critical experiments as yet, have been made. From an excellent summary of research on endocrine factors in behavior by Shock⁸⁹² we can infer that, while a great deal of research has been done, there is little demonstration of a direct effect of endocrine secretions on behavior except in cases of abnormal endocrine function. Even in some of these the effect may be due not directly but indirectly to the individual's attitude toward a physical abnormality produced by endocrines.

In cases in which noticeable physical deviations are produced

by endocrine function there may be personality difficulties because of the mental attitude adopted toward the abnormality due either to dissatisfactions from within or to pressures from Society without. Endocrines, therefore, have only an indirect effect.

Thus endocrines are one of the many factors which contribute to good physical health and growth which in turn contribute to wholesomeness and balance in personality. Aside from that we must await further work in this field.

INFLUENCE OF ILLNESS ON THE PATTERN OF GROWTH

Acute Disease Affects Physical Growth. Acute illness may have a temporary effect upon physical growth. The degree to which illness affects growth undoubtedly depends upon the nature, severity and duration of the illness. A retardation in gain in weight, or even a loss of weight, may accompany an illness. This depression in weight gains is, however, temporary and the child generally catches up promptly. If the illness is long and severe there may be some decline in the rate of growth in height also. Weight, however, is more likely to be affected than height.

Studies of large groups of children, such as those done by Hardy⁴³¹ and Palmer,⁷⁶⁴ reveal no significant difference in the growth in size of children who have had frequent illness and those who have been relatively free from illness. In these studies, however, no consideration was given to the nature, the severity or duration of the illness, or to the relationship of the time of illness to the time of measurements.* Thus it is possible that some temporary effect might have occurred in individual cases and have been obscured in the mass of data. These studies are of interest because they justify the conclusion that ordinary illnesses probably have, in general, no permanent measurable effect upon growth in size of school-aged children.

There is modification in the growth of bones, however, at the time of severe illnesses. Scars, white transverse lines, near the ends of the tibia, and of the radius, can be recognized in x-rays, and are indicative of this modification.†⁴³⁹

Todd¹⁰¹⁴ reports scars appearing after such illnesses as measles

* A study of preschool children in which they were grouped in an attempt to differentiate them according to amount, kinds and severity of illness revealed no significant differences among the groups.³⁰⁸

† Bayley⁷³ makes a tentative conclusion from her observation of cases in bone scarring in the California Adolescent Growth Study that illness may affect rates of growth, both in size and in maturity of the skeleton.

and a tonsillectomy. Figure 19 shows scars left after "croup" and after measles. Such scars tend to persist longer than the deceleration in weight gains. There are differences in the scarring of bones in response to illness from child to child and from time to time in the same child. In some children scarring will follow a relatively mild illness; in other children no scars will appear

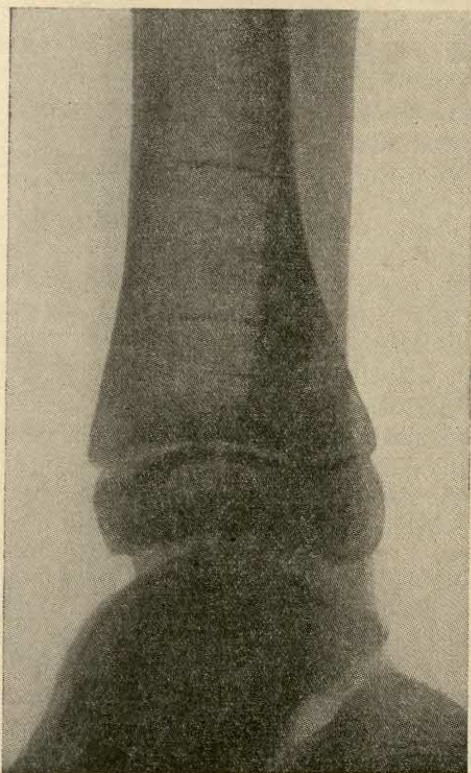


Fig. 19. X-ray of the lower end of the tibia of a twelve-year-old boy. The two distinct scars correspond to "croup" at six years and measles at ten years. (Harris: *Bone Growth in Health and Disease*, Oxford University Press.) [Lines which appear white in an X-ray are black in this print.]

after a severe illness. The same child may respond to illness differently at different times. The reasons for these different physiological responses are still unknown. An illness may affect the bones also by reducing the amount of minerals in them. In such cases the bone is said to be less well mineralized.

It has been said that the appearance of the bones of the wrist

is also retarded by illness.³³⁴ However, more recent work by Sontag and his associates⁹³³ has indicated that the appearance of bone centers is not delayed by illness. They found that the frequency of illness neither affected the order of appearance of the centers nor the age at which they appeared. In fact the children who had had more illnesses had their bone centers appear at an earlier age than did those with few illnesses.

Illness affects muscles, since during illness they lose some of their tone and tend to become flabby. If the muscles are not given an opportunity to regain firmness, fatigue and its accompanying poor posture may result. This effect upon posture may be temporary or may lead to habitually poor body balance.

Long and even a permanent effect upon posture may result from diseases which affect bones or muscles, as for example rickets and infantile paralysis. The deformities due to rickets are well known, such as weak feet, knock knees, bow legs, exaggerated spinal curves, scoliosis (lateral curvature of the spine) and deformities of the ribs.* Infantile paralysis, both mild and severe, may affect posture because certain muscle groups are weakened or lose their function entirely. Such conditions as foot weakness or scoliosis may result from this muscular weakness.

That an illness may produce some degree of anemia is evidenced in the fact that, following an illness, children frequently need a source of iron in addition to regular food. Some of the fatigue noted after a child has been sick may be due in part to a lowered hemoglobin count. A study of seasonal variation⁸⁰³ in hemoglobin of young children showed that the low point for hemoglobin values came in the winter, especially in the month of February, the time also of the highest incidence of upper respiratory tract infection, as for example, colds and influenza. Genuine recovery from illness, therefore, means not only the disappearance of the symptoms of the particular disease but also a return to the usual state of positive health. Hence a gradual, rather than a sudden, return to normal activities is desirable. Often a child returns to school before his bones, blood and muscles have recovered. If a teacher or parent is not aware of the fact that the child after illness is not up to par physically, that he lacks his usual reserve of energy and, therefore, tires more easily, too much may be demanded in attempting to help the child to catch up with his class in school.

* In a study of Dunham and Thoms²⁹¹ nine of ten children with severe rickets in early childhood were found to have skeletal deformities when examined between fifteen and nineteen years of age. Eight had retarded growth of the legs; five had abnormal pelvises.

Certain diseases may leave characteristic after-effects (sequelae): rheumatic fever, for example, leaving a damaged heart; scarlet fever leaving damaged kidneys or deafness; infantile paralysis leaving a paralysis; and encephalitis leaving damage to the brain. Little can be done to modify these handicaps other than to help the child adjust himself to them. The real effort of society, however, should be placed on prevention of these diseases and on early and adequate treatment whenever they occur.

Illness May Affect Behavior. An illness may be the starting point for later behavior difficulties. A child, when sick, naturally receives more attention from adults and is more dependent upon them. After recovery and even after returning to school, he may expect a similar degree of adult attention and solicitude. This expectation, coupled with a tendency to fatigue more easily, may result in occasional temper tantrums, in being easily discouraged, or in overaggressiveness. Teachers and parents who appreciate the origin of such behavior can deal with it patiently and intelligently.

A food problem may emerge from a period of illness. Lack of appetite creates a temporary disinterest in food, and parental concern may lead to urging, cajoling, and even forcing the child to eat. After recovery there may be a lag in the return of appetite, and the return to normal eating habits is likely to be slow. The time required for recovery of appetite depends to a great extent upon the attitude of the parents during the child's illness as well as upon the speed of convalescence.

Certain Behavior Symptoms May Indicate the Onset of an Illness. The need for protecting the child, following illness, has been mentioned. It is also important to recognize the onset of illness in order to protect the sick child, as well as to prevent exposing other children in the group to any infection. The onset of illness can generally be detected early by careful observers. A sudden lack of interest in work or play, disinterest in food, fussiness and increased irritability and restless sleep all point to possible imminent sickness.

Chronic Disease Influences Growth. Certain chronic infectious diseases can affect growth. Children may suffer from chronic disease, especially in the nose, throat, mouth and ears. Chronically infected tonsils and adenoids may and sometimes do affect growth. Chronic infection with parasites in some children who live in the south prevents adequate growth, especially in the case of children with hookworm infestation.⁹¹⁰ The child with congenital syphilis is known to be undersized and chronically ill with a number of symptoms.

Longtime Illness May Interfere with Satisfactory Personal Adjustment. Children with chronic heart defects, rheumatic fever, tuberculosis, and other longtime illnesses, are a group whose physical condition clearly affects school progress and general personality development. Absence from school means loss of work, accumulating school retardation, accumulating loss of confidence. Home teachers, who go into the children's homes are a great boon to such children, but relatively few school systems provide them. These children suffer the same temptations to "trade on weakness" that crippled children do, though somewhat less emphatically, since their defects are not as evident to the eye as the leg brace or paralyzed arm, with the result that these children do not suffer quite so constant an impact of pity as do crippled children.

Some children must learn to accept life at a slower tempo, to select their activities among those which do not overtax their physical abilities, and to capitalize on their assets. On the other hand, it is easy for a child with a history of rheumatic fever to acquire an "invalid reaction" which might later develop into feelings of insecurity, inferiority and anxiety. With the necessary precautions to protect the child from recurrent attacks adults may become oversolicitous and prevent the child from acquiring independence. Because a child cannot be assured that he is cured he may become fearful about future attacks. Teachers can help these children to have a happy, satisfying life. The emphasis can be positive rather than negative.

Development in Diabetic Children. The diabetic child, unlike the crippled child or the cardiac child, can easily be overlooked in the school or in any social group. The cardiac child's physical handicaps are such that it is necessary to make special provision for him, while the physical limitations of the diabetic do not necessarily interfere with his regular school and group activities. By understanding his development and his needs, the teacher can help him acquire a wholesome personality. Since studies of the growth of diabetic children and experiments in how to treat such children are extensive, we shall quote them at some length here in the hope that they will aid in the understanding and treatment of children suffering from other chronic diseases.

Most diabetics grow normally in height and weight.* Several studies^{119, 148, 505} call attention to the relation of the diabetic's

* Wagner et al.¹⁰³⁰ found that more than 90 per cent of the diabetic children he studied grew and developed normally. However, within the range of normality, diabetics have a greater tendency to be below than above the average in height and show a wider variability.

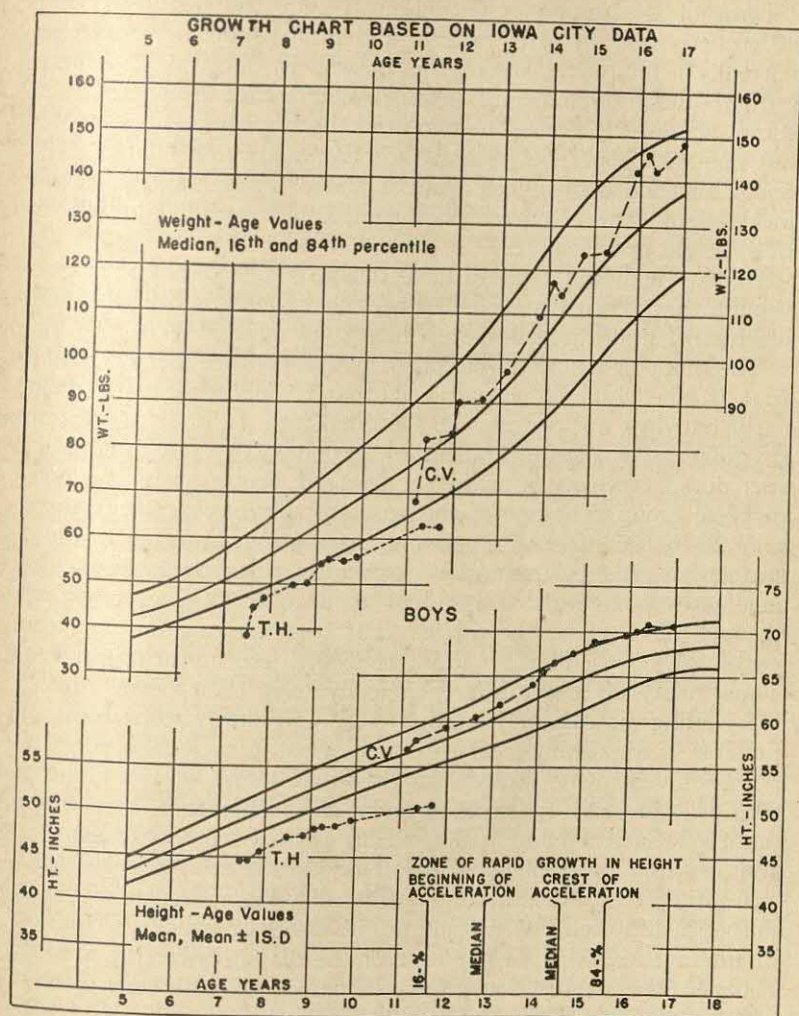


Fig. 20.—The growth curve of C. V. was selected to demonstrate the satisfactory growth in height and weight of a boy with moderately severe diabetes kept under excellent control. The growth chart of T. H. illustrates the unsatisfactory growth in height of a child with moderately severe disease kept under poor diabetic control. (Jackson and Kelly: *Jour. of Pediatrics*, Vol. 29, 1946.)

diet to growth. A child on a well-balanced diet and in whom diabetes is controlled has a better chance to grow than a child who is given a limited diet. The rate of growth varies with the

control of the disease. Children in whom the disease is well controlled tend to grow better, and girls begin to menstruate normally; children in whom the disease is not well controlled grow more slowly, and girls begin to menstruate later. Figure 20 shows the growth curves of two boys, both with severe diabetes but one with good control and the other with poor control. The one with good control has a curve above the average in height and weight. The boy with poor control has retarded growth in both height and weight.

Diabetic children tend to have delayed bone development although that is not true of all.* Scars near the ends of long bones are further indications of metabolic disturbances.⁴³⁹

The onset of sexual development of the average diabetic child, that is, the child of normal height and weight, tends to occur early but does not progress at a normal rate. In one study¹⁰³⁰ an irregular order of appearances of secondary sex characteristics was noted twice as often in the diabetic group as in the non-diabetic group. The age of the onset of the disease seems to be related to the progress in sexual maturation. Another study⁵⁰⁵ states that girls mature normally when the disease appears before nine years of age and it is under good control. However, when the age of onset of the disease falls between ten and fourteen years, the disease is likely to interfere with the maturing process. Thus, many diabetics differ physically from their peers.

Avoiding retardation both of growth and maturation whenever possible is important from a psychological as well as a physical point of view. One study⁶⁵⁷ reports that many of the children studied were more disturbed over their shortness than their diabetes. Such a child had a tendency to become exclusive or compensated by being a show-off or boaster and exaggerator.†

A study¹⁴⁷ of mental and personality comparisons between diabetics and their healthy siblings revealed a normal distribution of intelligence, with 43 per cent of the diabetics having an I.Q. between 90 and 110.‡ The group compared well with their siblings and showed an even and regular mental development. There was no relationship between the duration or severity of the disease and intelligence. Ratings on the Woodworth-Cady Psycho-Neurotic Inventory indicated no differences between the diabetics

* Bogan¹¹¹ in a study of one hundred and sixty-nine diabetic children in which she compared x-rays of their hands with the Todd and Flory Standards, found that bone development was retarded in 60.2 per cent of the boys and 51.1 per cent of the girls.

† Such compensation for shortness has been noted elsewhere.

‡ Children studied by Wagner et al.¹⁰⁸⁰ had intelligence quotients ranging from 65 to 130.

and their siblings. In observing behavior during the tests, testers noted that the diabetics were frequently careful, meticulous, earnest and conscientious. This, coupled with good school reports, was attributed by the author to the habit-training forced upon the diabetic child by the strict regimen made necessary by the disease. School reports indicated a predominance of desirable traits, and few instances of feelings of inferiority and attention-seeking devices. The parents reported that the personality of these children had changed little since the onset of the disease. Excitability and irritability were the only traits that had increased considerably. There was some indication that these children had become somewhat more cautious and stubborn. These changes would be expected in children with chronic diseases. The author concluded by saying:

It is important for the sake of the personality of the diabetic child that not too much attention or sympathy be bestowed on him by parents, teachers, or friends, in case he thus may come to feel different from other children and to expect privileges on account of his illness. He should be given the responsibility for his own welfare (testing his urine and giving his own insulin) as early as possible, and he should be made to feel that success depends upon himself in the matter of his total well-being.¹⁴⁷

This advice to those associated with diabetics can apply also to those dealing with children having any physical handicap.

Adults are becoming aware of the need to help diabetics lead normal, happy lives. The Rhode Island Hospital⁵⁰³ in Providence, by integrating medicine, group work and case work, organized a club for diabetic adolescents. Some of the adolescents attending the clinic were losing out on social contacts because of embarrassment and feelings of inferiority. Harriet, for example, an eighteen-year-old, seldom mingled with girls in school because she was afraid of being asked to go to a drugstore for an ice cream soda, which was taboo. Edward, also eighteen, working in a National Youth Administration resident center, was so afraid of other boys knowing about his diabetes that he arose every morning at 4:30 to take his insulin. Another boy had been so sheltered by his parents that he had never gone hiking or picnicking with other children.

The Y. W. C. A. and the Y. M. C. A. managed the program of this diabetic club. The social worker of the clinic explained the program to the adolescents and their parents. Beginning with a Christmas party, "The Friday Nighters" held weekly meetings, planned by themselves. Some meetings were educational. They learned about the disease they had; what it was and how they

could live with it. Some meetings were devoted to active games and dancing. Sports and active games became an important part of the program, since physical activity aids proper utilization of sugar. The boys and girls moved out into other groups and became a part of a group in which they were not known as diabetics. In the summer they had two weeks at a camp where they lived with normal children, ate in the same dining room but at a separate table, had the same food except for necessary substitutions and took part in all the camp activities. From these experiences these children learned (1) that development, self-control and good sportsmanship help in adjustment to a chronic disease, and (2) that diabetes need not be a barrier to a normal, happy life.

Nelson⁷⁴⁴ reports that the Girl Scouts of Cincinnati experimented with taking a small group of diabetic girls in their camp for two week periods and found it successful. A camping experience in a camp for "normal" children has inestimable value to the diabetic. It gives him an opportunity to live and compete on an equal basis with nondiabetic children. In this camp, diabetic children were included in every type of camping activity, including overnight hikes and cookouts. The author warns that a camp to serve diabetics needs to be well conducted, have a carefully balanced program and adequate health supervision which includes a medical examination prior to admission, a graduate nurse, a physician in residence or on call, and a good dietetic department.

Thus diabetic children, while they have certain physical handicaps, may develop mentally and emotionally as other children do. With help from understanding adults, they can acquire a wholesome attitude toward themselves and fit into the social group. Much can be learned from successful treatment of children suffering from this chronic disease, which can be applied in helping children suffering from other chronic diseases to lead as normal lives as possible.

PHYSICAL DEFECTS

Physical defects may have little or no effect upon a child's development or they may affect development immensely. Much will depend upon the nature of the defect, its severity and the attitude of the child himself, his parents and his peers. Each defect places a specific limitation upon the child. That limitation may be severe enough to interfere profoundly with his activity, as for example, cerebral palsy. It may influence his social development by preventing him from developing useful skills, by setting up a barrier between himself and other children because he is different physically, and also by preventing him from becoming

independent. Emotionally he may be unable to satisfy his needs for security, affection, and success and thus compensate for the lack of these either by withdrawing or showing aggressive behavior. A defect may also interfere with his achievement at school.

Some parents and teachers may try to ignore the child's difference and expect him to carry on without privileges. Others may overprotect the child and by so doing prevent him from growing and give him self-pity. Some, however, are able to encourage and assist the child so that he can develop to the fullness of his capacity. Parents and teachers can help physically handicapped children to substitute other skills for those which they cannot acquire. They can also see that their psychological needs are satisfied and thus help them to become successful and happy members of society.

Effect of Visual Defect upon Development. A visual defect may range from defective vision which can be corrected by glasses, through partial sight to total blindness. The relationship between a serious sensory defect and retarded intellectual development is well known. Blind children are slow to acquire gross motor control, must develop Braille skills in order to learn to read and in infancy are often mistaken for feeble-minded babies. There are few reports on the intelligence of sight-saving-class pupils and the blind. Baker⁴⁶ reports that in sight-saving classes in Detroit between 1939 to 1942 the median I.Q. was 93. He also states that a survey of investigations indicates that blind children test somewhat lower than seeing children with fewer gifted and more mentally subnormal among the blind than the seeing children. Any serious defect in vision proves so serious a handicap to learning that special help with specially adapted methods is necessary⁶⁹⁷ if these children are to progress in school at a rate even approximately commensurate with their intellectual capacity.

Studies of the characteristics of partially seeing children are rather few. Indications are that the unpleasant appearance of heavy glasses and the inability to participate in many games tend to cut off these children from others. There is the possibility of undue nervous tension⁶⁹⁷ resulting from trying to see with reduced vision. Many children may have feelings of inadequacy and inferiority because they are unable to keep pace with children of good vision. Visually handicapped children have been found "to be more docile, less active, and have less initiative than seeing children of corresponding ages."⁶⁷⁶ According to Pintner⁷⁹⁶ children with partial sight generally show no marked changes

in personality as measured by personality inventories.* The individual differences in personality traits for the visually handicapped children in this study were similar to those of so-called normal children. Morgan⁷¹⁵ found personal and social maladjustment among adolescent boys and girls in a school for the blind. The scores of the Personal Index test (by Loofbourow and Keys) revealed more personal and social maladjustment for these blind adolescents than for children with good vision in a city school. Those with more residual sight were more maladjusted than the totally blind. Children with unrecognized visual defects may demonstrate behavior patterns which, if properly understood, would tell us that the eyesight is defective.†

Effect of Deafness. The terms "deaf" and "hard of hearing" are generally defined in terms of functional auditory capacity. A Conference of Executives of American Schools for the Deaf adopted the following definitions:

The deaf: Those in whom the sense of hearing is non-functional for the ordinary purposes of life. This general group is made up of two distinct classes based entirely on the time of the loss of hearing; a) the congenitally deaf. Those who were born deaf; b) the adventitiously deaf. Those who were born with normal hearing, but in whom the sense of hearing is non-functional later through illness or accident.

The hard of hearing: Those in whom the sense of hearing, although defective, is functional with or without a hearing aid.¹⁰⁰⁶

The deaf or hard of hearing child is often a misunderstood child. His defect is not always recognized and, therefore, his behavior is misinterpreted. He may be mistaken for a child with poor mental ability. He may then be neglected and become withdrawn. Because he does not attend, he may be marked as indifferent, stubborn, careless and impolite. The characteristics that are commonly attributed to the deaf, mentally sluggish, inattentive, suspicious and melancholic, are not true according to teachers of deaf children.⁹⁴¹ The very nature of his deafness may in some cases make adults unduly critical of the child. A child may hear better at one time than another. Some voices may be more distinct than others. It can be easy for any other than a keenly observant and well-informed person to lay such a child's variable response to deficiencies in character. Deaf children can be misunderstood, also, because they may misinterpret situations. Because they fail to hear all the facts, their

* Inventories used were Aspects of Personality Test and Pupil Portraits Test.

† For signs of eye trouble in children see *Conserving the Sight of School Children*, Nat'l Soc. for the Prevention of Blindness, New York, 1935.

conclusions and hence their behavior may seem strange to those who, because they can hear, can base their judgment on all the facts. Such children are often considered "dumb" or "queer."

It becomes important, then, to be able to detect the signs of deafness. Baker describes deaf children as follows:

As a group the deaf are inattentive, imperfect in speech, bewildered and baffled in expression, sensitive and aloof because of deafness. They frequently complain of earache, have discharging ears, are mouth-breathers and hold their heads in peculiar postures so as to hear all they can from meager sounds which fall upon their ears. Theirs is a world of isolation. Although the channels of communication may be kept open by great effort, it is always easy to let them become closed. They become blocked through lack of constant use, like the faint trail in a blinding snow storm on a country road.⁴⁶

Studies of personality and adjustment, social maturity and fears of deaf children and children who can hear have been summarized by Barker, Wright and Gonick.⁵⁵ In comparison with children who can hear, deaf children tend to be more fearful,^{159, 795} to be more poorly adjusted and more unstable emotionally, and less socially mature if they attended residential schools^{*159, 168, 942} but similar if they attended day schools.^{418, 964} Habbe⁴¹⁸ concludes that a child can solve problems associated with his hearing if his general adjustment to life is good. Adjustment scores have been studied and found not to correlate with (1) degree or duration of hearing loss^{418, 942} (2) age at onset,⁹⁴² (3) chronological age,⁹⁴² (4) hours of lip reading instruction.⁴¹⁸ Good adjustment tends to be associated with the presence of other deaf members in the family.⁷⁹⁵ It must be remembered that deaf children have much in common in their inner impulses and development with children who can hear. Unless they are sent away from home, they also live in families where many personality patterns are firmly set, and could, therefore, be expected to develop a variety of diverse personality patterns.

Effect of Crippled Body upon Personality and General Adjustment. Children are considered cripples if they have impaired use of body, legs, arms. To these are generally added those with a weak heart. Among these are varying degrees of crippling defect from such diverse causes as disturbances in development before birth, accidents, and diseases, such as infantile paralysis, tuberculosis of the bone and many more.

Crippled children, being obvious to the public, have received

* Children with more difficult hearing problems generally attend these schools. There may also be the factor of some emotional disturbances due to separation from the family.

fairly adequate care when contrasted to the army of other "special" children. Medical care is available to a substantial proportion of them through state funds administered in such a way as to provide operative and hospital care, occupational as well as physical therapy and, in many school systems, special educational facilities. Parents and educators have not, however, been helped so universally to understand the psychology of the crippled child. These children, conspicuously different from other children, prevented by their bodies from satisfying childish urges to activity and to social participation in the games which interest their contemporaries, must find basic satisfactions elsewhere. They may resort to playing up their defect for sympathy and attention from adults, although they seldom do so with other children who are not moved for long by such bids and soon prove unresponsive. They may use the defect as an excuse for not accomplishing as much as they could accomplish if they would. Being unable to defend themselves or to run from danger, they often develop fears, both those based upon real danger and those which are symbolic of other psychological factors. With proper adult guidance, however, most crippled children can face their defect courageously, and develop compensatory skills. Franklin D. Roosevelt was a splendid example of a fine compensation for defect and was an inspiration to crippled children everywhere.

Studies reveal differences in opinion about the intelligence and educational progress of the physically handicapped. Some studies^{612, 746} have shown that these children test a little (5 to 12 I.Q. points) below noncrippled children and are retarded in school; others^{371, 567} have found no retardation. Crippling in itself apparently has no unique influence on children's behavior. Crippled children tend to be as well adjusted as noncripples with a slight trend in the direction of maladjustment.⁵⁶⁷ The length of time the child has been crippled has some but not a great influence on adjustment.

However, personal and social relationships in the home tend to have more effect upon the child than the crippling itself.³⁷¹ The interplay between the defect and parental attitudes is well illustrated in the case of a pair of identical twins reported by Newell,⁷⁴¹ one of whom was partially paralyzed. Her development was retarded because of the paralysis of the right arm and leg. This affected her emotionally and socially. Her social and emotional difficulties were enhanced, however, by her parents' rejection of her and the constant contrast with her twin. Attitudes of parents which are distinctly harmful to children's adjustment are (1) inconsistent behavior involving careful provision for the

necessary physical care together with resentment of the burden it entails, (2) rejection of the child, and (3) overprotection.¹⁵ The attitude of the disabled children toward themselves varies considerably.*

Like slight defects in hearing and vision, slight crippling affects numberless children whose handicaps are not as evident as those of the grossly crippled. Strang gives an excellent example of how slight crippling affected the school life of one boy.

... James was becoming a trial to his teachers and was arousing resentment on the part of fellow pupils by his bullying of younger children, his temper tantrums, his lack of cooperation in group activities. He had a slight lameness. No one had been able to discover the roots of his annoying behavior. It happened, about this time, that the Health Department called a crippled children's clinic to be held in the school. Some outstanding specialists in the region were to participate. When the teacher told James about the clinic and suggested that he attend, he had one of his tantrums. This response suggested that his physical defect might be the basis of his troublesome behavior. Further study of the situation showed this to be the case. He had not been chosen for the Boy Patrol because he was physically unable to stand the strain; he could not play his favorite game, football; he was not welcome on a team in the gymnasium tournaments because of his handicap; and he was not strong enough to do the kind of remunerative work by means of which his older brother was bringing in money to his needy family. Having made these discoveries, the teacher was able to persuade James to obtain the expert medical help that was available. At the same time a number of school adjustments were made: James was made an assistant director of a group of little boys, working in this capacity with the playground director. Of his own accord he shifted from the tournament group in the gymnasium to a remedial physical training group, but at the same time became responsible for the tournament equipment. As he had an unusually good voice, he was given a solo part in the Christmas festival. He got a job taking care on Saturday mornings of the son of a neighbor who went out to work, and thus earned a quarter each week which he contributed with great pride to the family. Thus James was helped to face his limitation and develop his special strength.⁹⁶¹

Epilepsy. Epilepsy, the causes for which are not yet clearly understood, affects enough children to require some consideration here. There are two types: the grand mal or major seizure type; and the petit mal or slight seizure type. Although there is some evidence that the petit mal type may be due to psychological

* Frank³²⁷ in a study of crippled school children found that boys had a more aggressive attitude toward their handicap than girls. Boys tended to compare themselves unfavorably with healthy boys. Girls compared themselves more favorably with those who were more severely disabled. Boys were most negative toward their disabilities between twelve and sixteen years of age; girls were most negative between sixteen and twenty years of age.

rather than to physical cause in some cases, there is substantial evidence that grand mal seizures and many, if not most, of the petit mal seizures have a physical basis.*

In intelligence, epileptics for the most part fall in the low average of intelligence levels or in the high levels of feeble-mindedness. In the White Special School for Epileptics in Detroit over the period of 1937 to 1940 the I.Q. of the greatest number of pupils fell between 70 and 99.⁴⁶ Some epileptic children have superior intelligence. There is some question as to whether or not epileptic children suffer a progressive deterioration of intelligence. Falk³¹² over a period of nine to fourteen years of testing found no mental deterioration except in the case of three psychotics. However, Hilkevitch⁴⁶⁷ in a study of institutionalized epileptics found that deterioration did occur if the attacks began early and if they were frequent. Institutional cases, however, are nearly all of the grand mal type and of frequent occurrence.

The effect upon personality is usually quite marked. Bridge¹²⁹ says that personality problems develop as the disease progresses. Before the first seizure the child is very much like his companions. The first seizure will be associated with intense alarm and excitement. From that time the family tends to become apprehensive and solicitous. The child is restricted in activities and treated differently from his brothers and sisters. As seizures continue he becomes apprehensive and fearful. Parents have a real problem in protecting the child, on the one hand, and on the other, allowing him the freedom he needs, in order to prevent him from developing feelings of invalidism, antagonism or resentment. The child is at a disadvantage socially and in school because of the embarrassment connected with seizures and the other children's responses.

The forceful, robust child fights for his rights and his place in society. He may become a disagreeable, domineering bully or a hard-shelled, sullen and negativistic person. The less forceful and less out-going child reacts with feelings of shame and disgrace, withdraws to a silent and solitary existence, and tries by quiet overconscientious effort to secure some measure of success and satisfaction. Both lack the insight and confidence necessary to reach a satisfactory balance.^{†129}

Schools Must Make Adjustment to Children Suffering from Longtime Defects. Among those suffering from longtime handicaps *feeble-minded children* are perhaps the best known to

* The electroencephalogram (which is a graphic recording of the electrical activity of the brain) has been of exceptional value in diagnosing epilepsy.⁶³⁰

† For a comprehensive discussion of epilepsy see *The Nervous Child* 6, No. 1, 1947.

teachers as school problems since their defect, while it has a physical basis, is in the mental age realm, and the relation between mental age and school adjustment is better known than the relation between other types of defect and school performance. This is discussed in somewhat more detail in Chapter 9. *Epileptics* are also understood as requiring either rejection from school, or some special arrangement for their education. As a group, the epileptics have probably received less adequate attention from regular school authorities than have other special groups, the traditional attitude being that they will deteriorate mentally anyway and are not worth the nuisance of having them around. Medical treatment of epilepsy has made spectacular strides in the recent past. We have seen that evidence shows that mental deterioration will not necessarily occur except in the very severe cases. With present medical practice it is inexcusable for any school system to refuse some sort of educational opportunity to its epileptic children. This is not, of course, to be interpreted as meaning that children who suffer grand mal types of epilepsy should be placed in regular school grades with other children. The shock of seeing a severe epileptic attack is too great to other children to warrant any such step.

Most larger school systems now provide sufficiently accurate sensory examinations to detect most of the *children* who are seriously *handicapped in sight or hearing*, and are offering instruction specially adapted to their needs. Even these schools, however, are missing the scores of thousands of children revealed by the White House Conference on Child Health and Protection^{1053a} as partially defective.* Smaller school systems are missing everything but the grossest defects, and are not providing special educational devices even for these. Few parochial schools detect or adapt to such handicaps.

It may be impossible for smaller and poorer school systems to make special provision for all of its special children. Every school system, however, owes to all of its children the obligation to utilize whatever capacity they have and to make it possible for them to benefit as much as they can from a standard curriculum. If the curriculum and method cannot be adapted to the individual child, at least the school can guard against damaging the general development of given children by attempts to force them in a standard pattern at a standard rate.†

* See also: *Statistics of Special Schools and Classes for Exceptional Children; Bulletin 737, No. 2, Washington, U. S. Office of Education, 1942.*

† Excellent discussions of handicapped children appear in Teagarden,⁹⁸⁸ Miles,⁷⁰³ Doll.²⁷⁸

Some Less Evident Physical Conditions. Also important to school progress and adjustment are the less evident physical conditions. Children with *allergies* are fairly common today. An allergic child, who is sensitive to a food or substance in his environment such as dust, feathers or pollen, will have hay fever, if the reaction to the offending substance occurs in the nose. If the reaction centers in the bronchial tract he is an asthmatic. Another individual may have a sensitive gastro-intestinal tract and have digestive disturbances. If the reaction affects the skin, he has eczema. According to Cohen²¹⁵ a child with active allergy generally has difficulty in utilizing minerals and other food substances. Those who react through their digestive tract particularly are apt to be short and slim and may even be retarded in physical maturation. They tend to have short attention spans and show behavior fluctuations. MacFarlane* commented that she found many more tantrums among children suffering from skin irritations, like eczema, hives, etc. than among children not affected.

However, the intelligence rating and emotionality ratings of allergic children are not significantly different from those of non-allergic children.^{210, 837} When the allergy is controlled, as by eliminating the food to which the child is sensitized, growth and behavior improve. Knowing that a child is allergic helps a teacher or parent to understand and interpret his behavior. The adult can help the child who must eliminate a particular food or foods from his diet to accept this difference naturally and not become oversensitive or use his allergy as an excuse for more attention or for further fussiness about foods. Adults need to differentiate between real physiological allergies and "psychological allergies" used as devices to evade unpleasant experiences.

In adolescence such difficulties as *acne* and *malocclusion* (poor alignment of teeth) may produce acute self-consciousness and interfere with a child's adjustment in the social group. Attractive appearance is an opening wedge in a group, especially for girls. A blotchy complexion, protruding teeth, or a receding jaw removes that moral support which satisfaction in one's appearance gives to Youth.

Another physical condition, obesity, has been discussed in Chapter 1. The effect of nutrition upon school progress will be discussed in Chapter 4.

QUESTIONS FOR CLASS STUDY

1. What practical difference does it make to know about heredity in evaluating a particular child?

* MacFarlane, J. W. Lecture at Merrill-Palmer School, 1939.

- II. Find out if there is a children's hospital or an endocrine clinic in your community, or if there is an endocrinological service in your public school. If possible visit one of them and report for class discussion some of the cases which you saw.
- III. Which of your traits and characteristics do you consider as having been influenced mainly by heredity? By environment?
- IV. Do you recall any instance in your own development when you were pushed to learn beyond your "readiness"? What effect did this have upon you?
- V. Find what you can in the current literature (since 1945) about the effect of illnesses upon development.
- VI. What can you find in the current literature (since 1945) about the effect of special sensory defects upon growth and development?
- VII. Locate a child who is handicapped physically (eyes, ears, crippled, etc.). How does this defect affect his learning, his attitudes and his behavior?

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3. INFLUENCES ON GROWTH:

Emotional

Psychological Potential for Growth Varies. Just as the well-being of the child physically is a primary factor in the quality of his physical growth, so is his well-being emotionally a primary factor in his mental and personality development. As we have already seen, however, the relationship is not only one of physical factors upon physical growth and of emotional factors upon psychological growth. There is also a cross relationship: physical factors influence psychological growth, and emotional factors influence physical growth. The child inherits not only his body, with its peculiar type of framework and muscle, of glands and nervous system, and other parts of the structural organism which we may, for convenience, call his physical constitution. He inherits also a certain psychological structure of mental and emotional potentiality which we may call his psychological constitution.

The child because of his unique psychological constitution responds individually to emotional as well as to physical factors. Two children in the same family do not respond alike to what on the surface may appear to be the same physical environment, as we have seen. Neither do two children in the same family respond in the same way to what may appear on the surface to be the same emotional environment. The unique physical constitution which the child inherits determines how well he will grow in a given environment and how long he will resist physical illness or breakdown in the face of strain or exposure to disease. In the same way, the unique psychological constitution which he inherits will determine how well he will grow mentally and emotionally and how long he will resist illness or breakdown in the face of strain or exposure to factors which produce psychological illness. Just as some people break physically under little physical strain or exposure, whereas others can take almost unbelievable amounts of both, so do some people break psychologically under little psychological strain, whereas others have

tremendous resistance.* The basic psychological potential, then, varies, as does the basic physical potential for growth and development.

Psychological Environments Vary. Just as physical environments for growth vary, so do psychological environments. Good psychological environment is not highly correlated with good physical environment, nor poor psychological environment with poverty. Some homes provide a healthful physical environment comparatively free of disease, with adequate food, rest and play and other physical growth-promoting environment, but may provide a very poor emotional environment. For example, in homes which afford the best physical surroundings, conflict of personalities, or overambition, or overprotection or other psychological factors may exist which seriously interfere with adequate psychological development. Conversely, happiness and love, fine and well-balanced ideals, may produce so flourishing an emotional climate in a home that even submarginal physical living may fail to damage growth. Happiness makes one benefit to the maximum from what food is available; love can make even a sordid tenement into a home where children can grow well.

Physical and Emotional Factors Interrelated. In the same way that the physical environment of climate, food, rest, exercise, exposure to strain and fatigue, and to disease determine the rate and the pattern of the child's physical growth, so the emotional climate, love or the lack of it, good or poor discipline, adequate or inadequate intellectual growth experiences, psychological strains or satisfactions, and other psychological factors will determine the rate and pattern of his intellectual and personality growth. In addition to this, the rate and pattern of his physical growth will influence the rate and pattern of his psychological growth and vice versa. In general, then, all of the physical and psychological factors which influence either type of growth will influence both.

How Emotions Affect the Body. We have discussed at some length the effect of physical well-being or defect upon intellectual functioning and successful life adjustment for children. There is equally impressive evidence that the converse is true, namely, that emotional state, the adequacy of life adjustment, and the attitudes and feelings which result from such adjustment or lack

* There are some physical situations of continued malnutrition and exposure to disease which no physical constitution can take without breakdown; there are also psychological situations of continued frustration or strain which no psychological constitution can take without breakdown.

of it, affect physical well-being.* Emotional strain of any kind is likely to be reflected in physical functioning, just as physical defect or physical disturbance is likely to be reflected in intellectual functioning and personality adjustment. To understand this we need only to know how, under emotional stress, the autonomic nervous system acts to speed pulse and respiration, to retard digestion, to tense smooth muscles throughout the body, and to impede clear thinking.¹⁸² Strains or conflicts in the life of a child either at home or at school can interfere with his physical functions as well as with his ability to think clearly and hence to learn. Sherman⁸⁸⁶ warns us, however, against the fallacy of supposing that an attack upon the physical symptoms, presented by children under emotional strain, will relieve the strain or the "neurotic" reaction to the strain. As long as the cause of strain exists, the symptoms will continue. We may "clear up" one set of symptoms sometimes under such conditions, only to find a new set breaking out. Unless we remove the emotional cause of physical or behavior symptoms we are wasting our time.

Satisfactions and Strains Important. Any set of conditions which drives a child beyond his natural functioning level inevitably produces a strain. So also will any set of conditions which continually frustrates basic needs and drives. This will be discussed later. One of the most important considerations in evaluating any given child's growth and functioning is the consideration of the satisfactions and of the strains he experiences. Satisfactions tend to release tension and to promote growth. Strains tend to produce tension and to impede growth and functioning. Is the child, for example, in the proper grade for his mental ability, his physical strength and his social development? If not, he will be subject to dissatisfactions and strains every day he is in school. Again, regardless of his ability, is his performance meeting the expectations of parents and teachers? If their expectations are soundly grounded upon his real physical, intellectual and social abilities, then he can and probably should be urged along. If, however, their expectations are beyond his natural capacities, he suffers strain not only at school but also at home.

Anxiety over one's place in the gang, or over some real or fancied difficulty with civil or school authorities, may occupy a child's attention so that he cannot concentrate at school. It may

* One of the best summaries of the evidence in this direction appears in Dunbar.²⁸⁹ Good discussions of the relation of emotional strain to physical well-being and to educational adjustment can be found in Sherman,⁸⁸⁶ Witty and Skinner.¹⁰⁷² A good discussion of the school's obligation to recognize and adjust to mental health factors can be found in Ryan,⁸⁶³ Skinner, et al.⁹⁰⁴

also, particularly in less aggressive, less "out-going" children, tie up appetite, interfere with sleep by making the child restless and by producing bad dreams. With more aggressive, "out-going" children, the strain will probably show in irritability, explosiveness, difficult behavior. Any worry over parents, siblings, or over any other thing which is real to the child, reflects in school work and general behavior as well as in general physical well-being.

MacFarlane,* in reporting long-time studies on children at the University of California, corroborates a widely accepted clinical opinion in saying that fat indigestibility and vomiting sometimes result from nervous tension produced by such situations as jealousy of a sibling.

Strain Affects Sleep. As suggested above, emotional disturbances may affect children's sleep. Giddings,³⁸⁸ studying sleep patterns and the effect of emotional disturbances on sleep, has demonstrated that the regular, individual pattern of movements during sleep is changed when children are emotionally disturbed. Among a series of cases cited of increased motility in sleep, he includes evidence to show that the news of a father's remarriage, stealing of a bicycle, and study for an examination all produced increased activity during sleep. That the increased activity following study for an examination was the effect of tension and not merely studying was indicated by comparing the sleep motility curve of this child with that of a group of children who had a period of study before retiring. The group curve showed no change after studying.

Tension, with its physical manifestations due to the heightened activity of the autonomic nervous system, leads to fatigue. It is reasonable to expect this fatigue to appear when the increased activity of heart, lungs and muscle is continued for any extended period of time. In turn, fatigue reinforces tension and thus a vicious cycle is set up. The various behavior characteristics of children under tension, given above, are some of the signs of a tired child. A continually fatigued child becomes physically impaired. His appetite diminishes, resulting in inadequate food to maintain a good state of nutrition, his posture slumps, which, in turn, reduces the efficiency of all the body's organs and their functions.

Adjustment to School Often an Emotional Strain. Kindergarten and first grade children frequently suffer from lack of appetite, sleep disturbances, and loss of weight, as a consequence of the tension of adjusting to the new requirements of school. In such

* MacFarlane, Jean W. Lecture at Merrill-Palmer School, 1939.

instances, it is probably not the school which must adjust to the child but rather the child who must make the adjustment to the school, his reaction being an indication that he is ill-prepared to make an adjustment required of all but the most exceptional

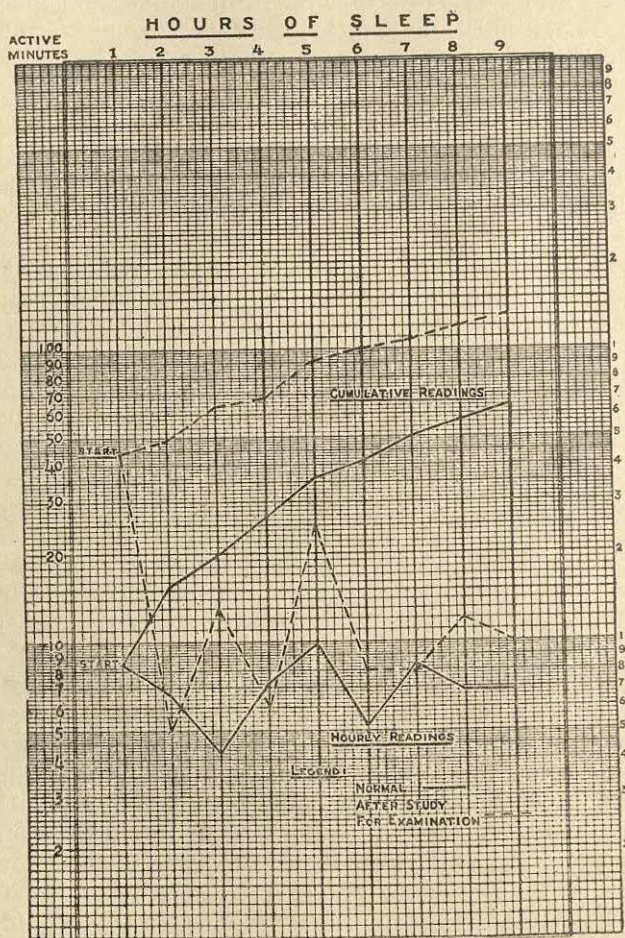


Fig. 21. Showing the effect of study for an examination on the sleep of a child. (Giddings: Journal of the Medical Association of Georgia, Vol. 25, No. 10.)

children. Much can be gained for both child and parent, however, if the teacher "understands" and, through patience and some temporary adjustment at school, helps "wean" the child into the required adjustment on his part. The hard-boiled teacher

says, "Eventually—why not now?" and refuses to make any concession to the child. She may even be harsh with him, thinking to hasten his adjustment. In doing this, however, she often places such a child in so difficult a situation that his adjustment is greatly delayed. It is not at all unusual to find children relapsing in toilet habits upon entrance to school, or upon encountering a "tough" teacher even after a year or so of school. To the young child, school entrance is one of the most critical adjustments required in his life. He should be given all possible understanding and help in making this adjustment.

Part of the critical aspect of school adaptation is the readjustment required by separation of the child from his mother and from the familiar routines of the home. England's experience with evacuation of children during the recent war, showed that separation from home and the "sanctions of the home" produced more neuroses than were produced by actual bombings.¹⁰ Although school does not represent as vital a separation as does evacuation in wartime it does represent for many children a sufficiently vital separation to be reflected in rest, appetite and incontinence of urine or feces.

Severe fear, anger, or even love, too exciting thrills, too discouraging depression all set off secretion of epinephrine, popularly called adrenalin, by action in the autonomic or vegetative nervous system. This inhibits the flow of the digestive juices, redistributes the blood, races the pulse, speeds breathing, and, although the body is thus made ready for vigorous physical action clear thinking and fine motor coordination are inhibited. Knowing this, we can understand why we have no appetite when intensely worried, why we cannot think clearly when nervous and tense, and why any form of tense emotion is exhausting.

Dull children, whose thinking and emotions need stimulating, especially those whose physical reactions are slow, can benefit from an enthusiastic teacher who "whoops up" their interest. But superior children whose tempo of emotional responsiveness is high, are often overstimulated by a "whoop-up" teacher, and are thrown into the type of emotional tenseness which sets off the autonomic nervous system with all of its consequences. Sarcasm or ridicule belong to the type of discipline which, along with physical violence, throws nearly all children into so emotional a state that the autonomic nervous system is set into action.

The simplest understanding of the action of the autonomic nervous system should forever clear our schoolrooms of sarcasm, ridicule and physical violence. No child, roused to emotion by

these, or any other emotion-rousing methods, can possibly think clearly, or speak or write adequately, since the automatic by-product of the tense emotion is a blocking of thought, and a disturbance of the motor controls of which speaking and writing are two of the most delicate.

Teacher's Attitude Important to Child's Emotional Balance. Every teacher, parent or guardian must, to do the job of dealing with children even reasonably well, learn the emotion-tension stage of each child. We must know how to arouse enthusiasm which does not spill over into tense excitement or neurotic fear of falling short of the mark; we must know how to stimulate interest without too much fatigue. And we must never be unfair enough to treat children in such a way as to block thinking which is already blocked, or further to disturb motor behavior which is already imperfect. In other words, a quick sympathy with the child who cannot mobilize his thinking in speed drills, or who finds it impossible to read aloud before the large group may possibly relax him enough to accomplish the end; whereas sarcasm or ridicule can only intensify the original cause of such trouble.

A further application of this principle is that intelligent discussion cannot progress when one or the other party to the discussion is blocked by emotion. Children who are terrified cannot think; therefore, they cannot explain themselves by stating a reasonable defense, nor can they absorb a lecture on behavior. Quiet friendliness between adult and child or between child and child opens the channel for intelligent discussion of the situation before them and provides the best possibility that the child will remember later what was said. A too severe atmosphere in the principal's office, a too glowering expression on teacher's or parent's face may set off the child's autonomic nervous system so that he can neither think nor speak intelligently. This requires judgment on the part of the adult, of course. Some children, even when mischievous enough to get into trouble, require gentleness of approach for a really effective contact; others need considerable firmness. Any child who seems to need genuine harshness should have an investigation to reveal what is wrong at home, or in his neighborhood, or with his previous handling in school.

Moods. Moods are pleasant or unpleasant experiences which are less intense and which last longer than emotional experiences. They are often a "hang-over" of emotional experiences, although they may be the background for an exaggerated emotional response because they sensitize individuals to emotional stimuli. For example, a mood of depression may result from an emotional

experience of defeat or grief.* On the other hand, a mood of depression may make one cry over things that would ordinarily leave one almost unmoved; an irritable mood may make one explode into anger over comparatively trivial incidents.

One important factor in stabilizing moods is physical health and a fairly stabilized routine of living, especially for growing children. A well child is normally a happy child, although certain moods of explosiveness and negativism are considered "normal" at certain stages of growth as we shall see later. Zest and interest are important to the mental and personality development of children; but overstimulation, and an unstable, overexcitable or explosive emotional environment is likely to produce unpredictable and undesirable emotional behavior in children. The cultivation of a calm frame of mind, the habit of retaining a longtime perspective in the face of immediately disturbing circumstances, an ability to analyze one's own moods and to trace them to the emotion or experience which set them off, along with good physical habits can all help an individual to understand and hence to be less victimized by his moods. Care in cultivating this frame of mind should, however, be taken lest the child be subjected to the type of suppression of emotions which leads to explosion or to escape forms of behavior. A too even emotional environment can be dull and boresome, or repressive and therefore dangerous to mental health, to the development of initiative and to one's zest for living.

Basic Psychological Needs. Human behavior is "set off" or motivated by certain basic drives or needs or urges.† According to Murphy, "human instincts are always partly a matter of specific reflex acts and partly a matter of social experience or learning."⁷²² Thus we see the possibility of finding human behavior "set off" or motivated, not only by inherited drives, but, as the child grows, by an accumulating set of conditionings developed by experience.^{529, 546, 557} This viewpoint recognizes that the quality and force of the drive behind any specific piece of behavior is colored by emotion which has been built up by previous experiences.

Most introductory courses in psychology will have equipped the student of child development with a list of inherited drives, or

* Moods are, of course, often associated with over-fatigue, illness or other purely physical causes. In adolescent girls and mature women a mood of depression or of restlessness frequently accompanies certain aspects of the menstrual cycle.

† Depending upon the school of psychology to which the student has been exposed, he will recognize these terms as the things referred to by the general public as *instincts*.

instincts considered common to the whole human race.^{353, 500, 822} It will have been pointed out that any consideration of human behavior must take into account the fact that, whether we like it or not, the human animal will go after food when hungry, fall asleep when tired, will seek companionship with his fellows, will fight back when crossed or thwarted, and so on. As teachers or parents, we must, then, recognize these drives and must adjust children's programs to provide for them. Otherwise our effort at guidance or education will be futile or even destructive to the child's growth. At the same time, modern studies in child development and in psychiatry emphasize Murphy's viewpoint, namely, that the force which motivates any given person at any given moment will be made up not only of the basic drives common to all humanity, but also of a lot of emotional conditionings and forces which are unique with that particular person because they are the product of his own individual experiences.

For example, take two five-year-old children who are hungry and who are kept waiting for dinner. Both have a basic instinctive drive toward food which keeps them restless and irritable. But one child may cry, fret and nag until he is fed; the other may manage to control himself and cooperate in setting the table. Thus one child's accumulated experience has provided few curbs upon his instinctive behavior; the other has developed additional drives which motivate him to find satisfaction in his mother's approval of self-control and cooperation on his part. The second child has accumulated emotional drives which color or influence the basic, universal or primary reaction.

Understanding how this can happen, we can, perhaps, begin to understand how genuine control or guidance must take into account not only universal drives but also the specific conditioning or "experience accumulation" of the individual child to be dealt with. When we do clearly comprehend the importance of this, we can see why no teacher should attempt to spend a year with any child until she has made it her business to understand everything possible about his previous experiences and emotional accumulations. If we are to recognize the teacher's business as the guiding of emotion and personality as well as the imparting of factual or academic information, then we *must* clearly conceive of some system of records which will present something of the child's significant preschool history, and which will pass on with the child at least the highlights of his behavior patterns and typical emotional reactions, both inside and outside of school. We must also see that each teacher learns to find out how to use such information effectively in her daily dealings with her pupils.

Some Recent Evaluations of Children's Basic Universal Needs or Drives. L. K. Frank³⁴⁰ has written one of the most useful summaries of the child's fundamental needs. He recognizes the physical needs not only for food, shelter, rest and exercise, but also the psychological needs for love, affection and assurance. He emphasizes those inner forces which dictate the child's need to grow at his own pace and in his own pattern.

Frank expresses this (p. 357):

The nutritional and other physical needs of the individual child are to be viewed dynamically, not statically, in terms of continuing growth and development, rather than fixed height-weight standards (or other measurement standards) which are purely statistical averages. Moreover, these needs should be viewed in terms of physiological functioning, not merely of structural size and shape, since it is functional efficiency, not structure, that is important.

On page 358:

The child's need is for food, rest, sleep, and play, so that he will continue to grow and develop *at his own rate*. The emphasis should be upon the growing, not upon fixed dimensions for chronological ages based upon the assumption that all children grow at the same rate.

And on page 364:

The child, then, needs help in bringing his emotional responsiveness under regulation. Some children are more prone to anger and rage, others to fear and pain, so that each child requires highly individualized help in meeting his peculiar personal reactions. Unfortunately we have little knowledge of how to provide this help in a constructive, rather than repressive, manner, because we have treated the problems as moral issues, meeting them with threats, punishment, shame, and often equally violent emotional reactions.

The teacher or parent, then, should analyze his plan for each child under his supervision, and should try to arrange that each child can proceed at his own rate of growth.

Frank clarifies, too, as does Murphy, the necessity for recognizing the effect of our adult demands upon the child, as well as the child's need to be accepted by the social group in which he lives. In practical dealings with children, this means an acceptance of the fact that *not only must adults adapt their demands in recognition of the child's basic physiological and psychological instinctive drives; but also that the child must be trained to adapt his instinctive drives to the pattern of the culture or society in which he lives, but always in terms of his individual rate of maturation.*

Progressive educators have long preached and practised the imperative necessity for adopting teaching programs to fit at

least the most outstanding of the "basic needs" of childhood. They have long taught that our work with children proves exceedingly wasteful unless we adapt our demands and our programs to the *individual* needs of *individual* children. Progressive educators have helped greatly in adaptation of school-room teaching, and of teaching by parents in homes, to the "basic needs" of children. They have not always remembered, however, the other aspect of genuinely successful education, namely, that the child must be trained to adapt his instinctive drives to the pattern of the culture or society in which he lives. Simply to adjust adult demands to the child's inner needs is not enough. We must also help the child to adjust his inner compulsions to the demands of the society in which he must live. This requires a nice balance between "understanding" or "moulding the environment to fit the child" on the one hand, and "discipline" or "training in self-control and consideration of others" on the other hand.

It is comparatively easy to "discipline" a child into passive obedience to adult commands. It is more difficult by far to provide the kind of discipline which fosters self-directed conduct and which helps the child to mature into the kind of adult who can carry the responsibility of orderly socialized living. The Nazi German State produced the passive obedience kind of "disciplined" behavior through rigid discipline and coercive domination. Democratic states need responsible adults who can act as independent beings in cooperation with other self-directed adults.

Old-fashioned, formal educators, motivated by the "children-should-be-seen-and-not-heard" philosophy, leaned much too far in the direction of forcing adult patterns upon children, ignoring many of their basic needs and building up antagonisms or neuroticism as a result. Then the pendulum swung too far in the other direction in a few ultra-progressive schools or homes, with the result that children received no discipline, their whims were catered to, their "individualities" permitted to flourish uncurbed. It soon became evident that uncurbed instincts are no better than completely suppressed ones. No child who has failed to learn how to control his drives in order to live smoothly with other people can be called an educated child. We now see the necessity for a smooth balance between the two extreme philosophies. We now know that children cannot learn unless the lessons are tempered to their capacities; that they cannot develop initiative, a sense of responsibility, sound physical health, a proper sense of self-adequacy unless their daily experiences fit harmoniously into their need to grow and develop at their own rate, and unless these experiences produce satisfactions which fulfill their basic

inner drives. We know also, however, that society will make certain clearly predictable demands upon children, some as primitive as the demand not to excrete urine or feces except under certain conditions, some as complex as the demand that normal adults earn a living and contribute constructively to the progress of society. Parents and teachers must learn how to educate children in full recognition of the value of both of these philosophies.

Another Way of Stating Children's Emotional Needs.

Perhaps we can gain some help in practical application of these twin philosophies by analyzing children's psychological needs from another viewpoint. J. S. Plant,⁸⁰² a psychiatrist whose wide experience with children makes him speak with authority and practical understanding, lists children's psychological needs as follows: *Belongingness or security; learning to live in the world as it is; finding oneself like other people; being able to develop or to express one's own inner resources—a feeling of adequacy as to oneself; success or status in one's group.* Each of these has sound philosophy behind it and is worth consideration in view of the frequent misconceptions of what psychiatrists teach as the instinctive needs of children.

Nearly every writer in the field, whether psychiatrist or educator, recognizes *the child's need for emotional or affectional security.* He needs to be loved,* specifically, as Plant puts it, not to be loved because he is a child, but because he is somebody's child, namely, because he is *who* he is—Bobbie, with the crossed eye, the eager interest in boats, the queer little twist of his head. He needs to know that the love he received is love for *him*, and that no other child could quite fill his place. This must be so sound a human relationship that the appearance of another child in his family leaves him all of *his* very own kind of love, while, at the same time, he accepts the fact that the baby sister is loved for her own peculiar self. So in the school room, each child must feel his security with the teacher, in such a way that he is not jealous of the "teacher's pet" or driven to bad behavior in order to get notice. Security of place in the child's play or work group is so important, in fact, that one study emphasizes the element of security as the most important single factor in relation to variations of behavior in nursery school children.⁷²³

Plant calls our attention to the fact that this security is not merely a matter of showering love upon a child. It is a far more subtle thing than that. There is a sense of belongingness involved—

*The importance of this factor will be seen later in Chapter 14, as we discuss the development of conscience.

a basic orientation to all of life which is rooted in the fact of having a family, and of being a completely accepted member of that family. It is the thing, familiar to every clinician, which makes children want to leave even lovely foster homes in order to return to the most wretched of parents in the most squalid environments. It is not merely that the child is loved, but rather that the love of his family gives him a sense of identity within the haven of an "own family"—it anchors him, so to speak, to life.

Along with Frank, Plant emphasizes *the necessity of helping children*, not only by adjusting the world to them and their particular needs, but also by teaching them how to *adjust themselves to the world*. The psychiatrist's emphasis upon extroversion as the dominant and desirable trait of childhood has led many parents and educators into a panic-stricken anxiety about any child who sits down to think, or who wants to escape the crowd and be by himself part of the time. The super-extrovert who must be in the middle of a crowd or social group all the time, who reacts completely to the outside world without inner evaluation or thought, is an exceedingly hard person to live with. Plant urges a clear understanding of the natural reactions of each given child, leading the too withdrawn child quietly and happily outward, checking the too completely extrovertive child so that he develops evaluation and thoughtful perspective. In other words, each child, the extrovert and the introvert, must learn to live reasonably actively in the world as it is, accepting, adjusting, adapting, yet capable of influencing the environment about him.

The need to be like other people is the need everyone feels to be nearly enough like one's immediate group or circle of friends that one feels part of them and accepted by them—not queer or different. This need seems exaggerated during adolescence, when the young person considers it a major tragedy to be different from his group in clothing or behavior. However, there is, at the same time, a need to preserve the advantage of belongingness for one's own sake. Therefore, the young person manages to vary the general effect by individualized detail. Shirts, sweaters, saddle shoes, provide general effect for the high school or college girl in 1948, yet each girl manages a specific color or type of sweater, or some other individual variation which marks her individuality within the pattern of general identity. There is a need to fit into the group, yet at the same time to remain an individual. So basic is this desire to be in general like one's group that the psychiatrist takes a careful look at the person who, at adolescence, exaggerates marked differences or idiosyncrasies, playing away from rather than into the group pattern. It is the fine balance between sociali-

zation and individualization that we must help young people to achieve.

The need to express and develop internal resources is part of the need to balance extroversion and introversion. Whereas the child needs to learn how to be extrovertive or out-going in much of his behavior, and needs to learn how to be out-going in a manner which adapts successfully to the world as it is, he also needs, according to Plant⁸⁰² and the most thoughtful writers on the subject, to develop the skills and interests which make a full inner life possible.

Part of the unfortunate reaction to our earlier emphasis upon extroversion has been an overcrowding of the child's schedule and planned activities.* Parents and teachers have become anxious lest children fail to develop enough social skills, enough extrovertive interests. The result has been that many modern children have little or no time to play freely, to develop initiative in planning of time or activities, but especially time just to read or dream. Granted that the child who only reads or dreams is failing to develop muscles or social skills, we have erred badly in permitting too little free initiative and in providing too little time for quiet, restful, unplanned activities for most modern children. The American Camping Association²⁰ is appreciating this need, and is definitely tending away from the highly scheduled, activity-type of camp to the freer, rest-and-play type of camp. "Children," Plant says, "need time alone, time to just sit under a tree—ripening, so to speak. They need to develop inner resources, and a strong life philosophy, so that if and when their outer world goes to pieces around them, they can still live with themselves."

The need for status, or for the feeling of success, is, like the need for belongingness or security, widely recognized by writers as a fundamental human need. There is no pattern for filling this need. The mother of twelve children, with a drunken husband,

* Typical schedule for a city girl of twelve years:

School from 8:30 to 11:45 and from 1:00 to 3:00 daily.

Monday: Recreation club (half-hour by bus from home) 4:00 through dinner to 8:00 P.M.

Tuesday: Once monthly, children's theatre 7:30 to 9:30 P.M. Three times monthly neighborhood club 4:00 to 5:30 P.M.

Wednesday: Music lesson 3:30 P.M. Scouts 7:00 to 9:00 P.M.

Thursday: Family night at parents' club. Dinner, dancing and games 7:30 to 9:30 P.M.

Saturday: Dancing school; children's concerts.

Sunday: Sunday school 10:00 A. M., Church 11:00 A. M., Family drive 2:00 to 5:00 or 8:00 P.M.

See Dimock,²⁷⁸ for further discussion of sample schedules for pre-adolescent and adolescent children.

may have a high type of this kind of success—because she is needed, she is important to someone, life would be poorer were she to die. A lonely orphan, burdensome to the State and to his boarding parents, may find this status or “being-neededness” if he is permitted to have a dog whose devotion is clear and whose life, without its master, would be less complete.

It is in order to build a secure sense of being needed and useful, of earning one's way, so to speak, that children should learn to work. Our recent emphasis upon protecting children from child labor,* our urgent planning to fill children's time with happiness and play, our progressive education emphasis upon making learning quick and easy through projects and easily motivated activities—all this has resulted in depriving children of the opportunity to learn to work for the sheer sake of fulfilling necessary obligations or responsibilities. Plant's emphasis upon the fact that the soundest way to insure the fulfillment of the child's need for status is to teach him to take responsibility and to develop skills which will insure his being needed is timely, indeed. Educators, who understand the laws of learning (especially the law of effect), and who appreciate the principles of emotional conditioning, can perhaps safely be trusted to teach children how to work without damaging them or their attitudes toward work.†

Lane's Summary of Basic Needs. Lane,‡ whose work in the prevention of delinquency is outstanding, comments on children's needs in light of his experience with delinquency, what makes it, and how to prevent it. He says, about the need for affectional security:

Home should be a place where you don't have to deserve what you get. . . . A young person who is loved at home regardless of his mistakes seldom becomes a sex delinquent.

About the need for friendship and understanding he says:

Every person needs someone to talk things over with. Children will, if necessary, go to the lowest form of man or woman rather than do without a friend.

* An emphasis which must, of course, go on, since “child labor,” as represented by the children who must earn their living too young and at too demanding work, must stop.

† Further discussion of such specific needs as that of accepting one's own sex (e.g. if the child is a boy he should learn to like being a boy and to accept the masculine role; similarly for a girl); and the need for recognizing and adjusting to good authority can be found in Rand, W. R., et al.⁸²¹

‡ Lane, Howard, of New York University. In a lecture at The Merrill-Palmer School, 1945.

About authority, he says:

Children need a lot of respect for genuine authority—and this respect must be earned, not demanded, by the adult.

About privacy, he says:

Every person must be free to have a place for his private possessions and his private ideas. Being a parent or teacher gives no person the right to invade the privacy of another person. But children need a limit to their freedom; they must learn that no individual is free to do as he pleases in this life.

About fun, he says:

People need fun—safe, constructive fun. The early stages of delinquency usually result from an attempt to have fun. Modern cities are not built for children or adolescents to have innocent fun in.

What Happens When Emotion Is Aroused. When basic human drives or impulses are aroused the individual may (1) behave in a primitive, undisciplined manner, expressing the instinct directly, without control or consideration of others; (2) repress the behavior entirely, for the moment at least; (3) express some sort of modified, socialized behavior which satisfies the need or expresses the emotion in some socialized form.

Our culture, or civilization, permits inherent drives little, if any, unrestrained expression. One does not wolf food when hungry, eliminate without inhibition, strike or scream when angry, run terror-stricken when afraid. Growing up, or becoming civilized, requires that one learn to eat "with manners," to eliminate only at a given place and under certain circumstances, to express anger not at all or only in order to correct the source of difficulty, to develop courage in the face of fear. Such learning is one of the important parts of the educative process.

According to an old school of teaching, the task of parent or educator was to kill or repress instinctive behavior as the instrument of the devil; "discipline" of the regressive, brute-force type was considered necessary in order to curb the "original sin" in every child. This forceful suppression of original impulses and desires in children led to many cases of neuroticism and insanity and to the type of ineffectual, colorless personalities which could express neither good nor bad impulses. Explosions of repressed emotional energy occurred; various forms of psychological escape (explained later in the chapter) resulted in confused and confusing behavior which neither the individual himself nor his companions could account for. From study of the action of emotions and instincts when completely repressed^{1280, 347, 348, 349, 485, 501} we learned

that the type of discipline which blocks behavior without redirecting it to other useful channels results in maladjustments of behavior. Only when the curbing or redirecting of instinctive behavior is skillfully done, do we get happy, civilized behavior which is adapted or adjusted to the world about us.

Let us see in a little more detail how this comes about. Whenever a child or an adult finds one of the basic needs aroused within him two things may happen to it: (1) Circumstances may permit its fulfillment. If so, the need will be satisfied and the inner tension, roused as the need was awakened, is released. Inner peace and a sense of fulfillment results. (2) Circumstances may not permit the fulfillment and a mounting tension or drive is felt by the individual. The individual instinctively tends to seek means of releasing this tension, and may take such an attack upon his environment that he eventually finds a means of fulfillment. Or, if he continues to be unsuccessful in finding release and fulfillment, explosion may result. The basic resistance within the innate psychological constitution, the background of immediate mood, the longtime accumulation of controls, and of means of finding substitute releases and satisfactions will determine whether the individual will explode childishly or will eventually find satisfactory substitute releases.

If, however, the situation does not permit explosion or if the discipline of the child has blocked even substitute releases, the emotion may continue to exist in an unreleased visceral tension, or it may tend to find disguised ways of expressing itself.

The Role of Inner Emotional Conflict in the Life of the Child. It was pointed out earlier that direct expressions of certain impulses cannot find an acceptable place in our "civilized" society, and that, therefore, the child must learn to control such expressions. It was also pointed out that certain kinds of attempts to control these expressions might take the form of an attempt at complete suppression of the impulses themselves and that the damage to the child which results from such an attempt may perhaps prove serious in his psychological development. Better as an objective for discipline or control than repression of the impulse is a redirection of the impulse so that it can be sublimated or expressed in socially acceptable ways.

This checking and redirection of native impulses usually occurs because the child finds that his own desires or drives to behavior come into conflict either with his physical surroundings, or with his social surroundings. For example, the very young child may be impelled to try to handle a lovely, bright candle flame, only to find that it burns; or he may try to drive his tricycle through

an opening in the hedge which he soon finds is too narrow to permit him to go through. Thus he is checked by his physical environment.

He also soon discovers that many of his desires cannot be fulfilled without running counter to the desires of others. He cannot (or should not) be allowed to keep others waiting upon him when his attendants have other duties or obligations to fulfill. Some families "love" the child too much to submit his whims or impulses to any discipline, and he grows into what Adler⁶ describes as a "spoiled child," meaning that the child is unable to conceive of the need to modify his impulses so that they fit the needs and desires of others. Children who have never come into conflict with the rights of others or with the need to obey certain routines in daily life, children who, for example, eat when and what they wish, who go to bed only when they like, who have learned nothing about concentration upon work—such children are utterly unprepared to enter school. Even if the family has never permitted the child to come into conflict with the needs of his own physical routines or with the rights and desires of others, it is inevitable that he will meet such conflict when he enters school. He cannot, in other words, avoid the fact that what *he* wishes to do does not always fit into the machinery of a school day or into what other people want to do. Conflict of the right sort, properly guided and expressed, is not only inevitable¹⁴⁶ but healthy.*

The natural causes of conflict for children are listed by Brown¹⁴⁶ as follows:

1. Change of environment or widening of the range of activities; as when the child moves from one neighborhood to another, or as when he enters school or goes off to college, or otherwise naturally widens the range of his contacts with other people. There are inevitable minor or major conflicts between home and school, home and church, school and church, home or school or church and gang, etc. (See Figure 22 for a diagram of these influences.) In these conflicts the child may feel himself soundly grounded and secure, being convinced of the value of home or church or of school ideas, and yet open-minded toward new things. In this case, he can reach a compromise with the

* "The child, struggling from infancy to win affection and esteem from each member of the family, is living in a world of conflict. This is healthy. This is splendid. The normal child should earn his way by acts and attitudes which are pleasing to good parents, and bring rewards of approval, success and love. It is conflict which makes life interesting. But it should not be unequal, nor should demands be harsh or evil or beyond the powers of the child."¹⁰²⁶ (See also Ribble,⁸³⁴)

new things fairly smoothly. Or he may be "smug" and unwilling to adjust to the new values. Or he may be insecure, swayed too easily and completely by the new values, yet feeling the tug of earlier loyalties and beliefs.

2. The second cause of conflict for children, pointed out by Brown, is the conflict between the child's own undivided impulses or desires (apart from the training of home or school or church) and the approval or disapproval of his group. He cries, for ex-

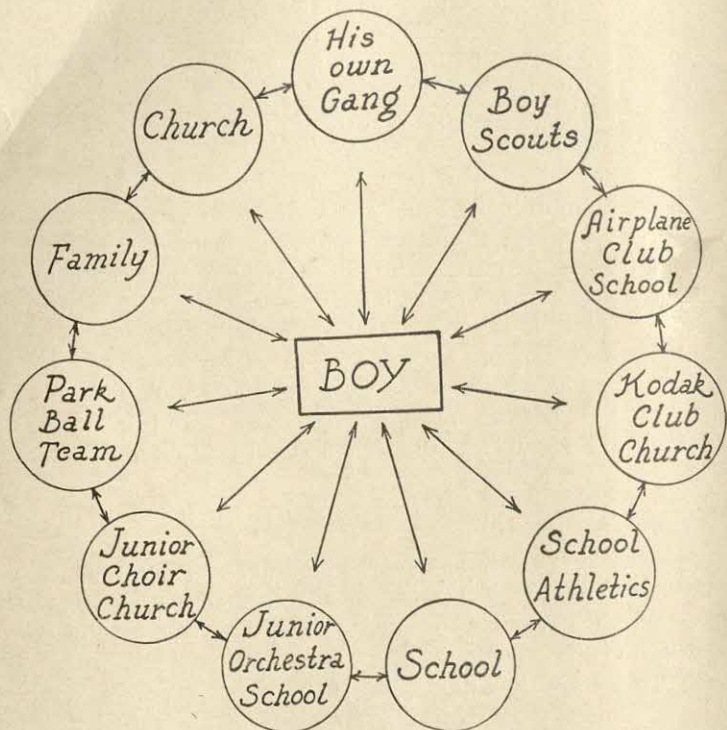


Fig. 22. Conflicting group loyalties of a thirteen-year-old boy. (Brown: *The Sociology of Childhood*, Prentice-Hall, Inc.)

ample, and is called "crybaby"; or he must wait his turn at a game, or submit to rules whether he likes it or not.

3. Then, there is the conflict which rises within him as he encounters the intolerances and prejudices of his surroundings, as when the Jewish or Italian or Negro child encounters the stinging impact of being a "Jew" or a "Wop" or a "Nigger," or when the child from the "wrong" side of the railroad tracks meets the feeling from the "right" side.

4. The conflict between Youth, struggling for freedom and recognition, and Age, which imposes restrictions and forbids opportunity. Youth, here, finds Age hidebound and old-fashioned: Age brands Youth as rash and inexperienced.

In addition to this list, there are important conflicts between the child's natural drives and the routines imposed by home and school. Foster³³¹ and other sociologists bring to our attention the impact of our cultural demands upon children, especially children of school age attending school in the average community. We demand of them (1) attendance at school regardless of how well they fit the available types of school; (2) punctuality; (3) discipline which shows proper, quiet attention and respect for the authorities; (4) "passing" grades; (5) acceptance of the school program, passing hour by hour through the school schedule; (6) acceptance of the prescribed subjects and courses; (7) cooperation with extracurricular activities; (8) cooperation with community programs such as safety programs, thrift programs, and many other such requirements. This is a rather formidable list of demands. Many children find themselves unable to live up to them. Conflict results in lethargy, "laziness," in bad behavior, or in a deep sense of failure.

The wrong kind of conflict, as is so clearly and insistently pointed out by psychiatrists and child psychologists,^{453, 853, 886, 1072} not only is unhealthy, but dangerous. Repression and wrong conflict lead to neuroses and delinquency. However, as we have said, the right kind of conflict can prove valuable, since it compels evaluation and judgment, provides training in decision-making, and gives the child experience in making adjustments. Sherman⁸⁸⁶ says that mild neurotic symptoms with their causative conflicts often act as motivators for energetic and creative endeavor.

Brown¹⁴⁶ outlines the values of conflict as follows:

1. Through conflict children learn the necessity of respecting the rights of others; find bases for comparison with standards.
2. Through conflict groups are stimulated to put forth their best effort and to struggle to achieve.

He points out, however, that continued, fruitless conflict, repeated over and over, rouses hatred, fighting and destructive use of energy. Only under proper supervision can we be sure that conflict between children or between a given child and his situation will result in the constructive outcome of learning compromise, fair play, tolerance and achievement in the face of difficulty.

Whatever children learn of standards of behavior at home, they inevitably encounter different standards as they are exposed to the outside world. As Sherman points out, young children

naturally regard their parents as all wise and perfect. Parents are tempted to encourage this feeling. Unless prepared for the fact that other people may have other standards, the child entering school may find his security and his trust in fixed standards somewhat disturbed. Adolescents, particularly, as they are exposed to varying standards of behavior, or as their own methods of behaving come into conflict with those of their peer group, may find their goals, ambitions and values badly confused.

In Spite of Many Conflicts Cooperativeness Grows Steadily. As conflict between children or groups decreases, the amount of cooperation should increase and the type should tend toward higher levels as we shall see in Chapter 13. Unless the child learns some principles of cooperation in his own home, he has difficulty learning them elsewhere. In the family, the constant sharing of the same rooms and the same facilities develops an awakening consciousness of the singleness of the family group, viz., a "we" feeling for the family circle; a "they" feeling for other people. Brown urges parents to increase this "we" feeling by sharing the activities of the children, but in such a way as not to stultify the growing independence of the child.

Teachers can do much to improve the level of cooperation at which children behave. Yet, teachers cannot do this unless they understand the bases of behavior, viz. emotion and its action, causes and kinds of conflict, methods for changing destructive emotions into constructive ones and poor solutions for conflicts into good ones.

How the Child Learns Control and Redirection of Emotion. At birth and for a short time thereafter the child has little, if any, mental apparatus which is not identical with his bodily organization.⁶⁶⁶ He has certain basic needs, as we have seen, such as hunger, the need to eliminate bodily waste, the need for protection and care. When he is hungry, for example, the inner distress and tension accumulates to the point that it results in an automatic outburst of crying, which does not release the hunger tension but does summon help. It is because the human infant, in contrast to many animal young, is unable to obtain food and to care for his physical needs that he is absolutely dependent upon the nursing care of his mother.

As the nervous system matures the child becomes capable of more differentiated reaction to his environment, of more physical coordination and hence of greater possibility of meeting his own basic physical needs. How adequately he learns these greater differentiations and how well he eventually comes to control his environment is dependent upon how well the adults about him,

particularly his parents, help him to develop the necessary awareness, to acquire the necessary skills and to control his inner impulses.* As the infant, and later the child, learns to control his drives he releases energy for constructive development of his personality.† Uninhibited expression of emotion and fulfillment of needs would, in most situations in life, lead to behavior which may cost the individual a tremendous price.

The young child wants what he wants when he wants it, irrespective of whether his behavior is useful in the long run or dangerous, or whether or not it is at the expense of his own interest or that of other persons or things. (Mahler.⁶⁶⁶, p. 45)

The adolescent who has failed to learn reasonable control over his emotions in general, and who has failed to develop varied satisfactory socialized releases for instinctual drives, will be unable to control his newly emphasized sex drive. He may thus prove not only a social menace to others but a constant source of trouble and danger to his own best welfare.

Fortunately for the child and for Society the child not only develops increasing ability to differentiate factors in his environment, but he also soon learns to value the approval of his parents and of other people. With the development of widening social horizons from three to five or six years of age‡ he develops the desire to win social acceptance from his parents and older brothers and sisters and later, from his teachers and his playmates. In the normally growing child this desire becomes a major drive which is powerful in controlling impulsive behavior. Davis and Havighurst²⁵³ in discussing this desire for approval say (p. 38), "This drive is really a form of adaptive anxiety. It makes him

* Mahler⁶⁶⁶ expresses this as follows (p. 45): "The differentiation to higher somatic and psychic organization depends largely upon the successful interpolation of inhibitory controlling agents between perception and action."

† Again, Mahler⁶⁶⁶ phrases this (p. 45): "Whereas the newborn and young infant has nothing but affectomotor paroxysms at his command to release tension and summon help, later on the infant will follow his mother with his eyes in a coordinated way. He will not only cry but wait patiently, because he has learned through repeated experience that his mother is going to feed him at certain times. The difference in behavior between the newborn infant and the three months old, for instance, demonstrates that the controlled drive, like controlled water power, becomes useful energy for ego formation; and indeed, in the entire growing-up process we can see that the controlled impulse is the mechanism which furnishes strength to the ego. In other words, the ego develops into the inhibiting and controlling organization that watches over the instincts which are unruly and blind, and which, if not controlled, would seek release even at the expense of the person's most elementary safety."

‡ See widening social horizons, Chapter 13.

(the child)* anxious, first, to avoid punishment, and, second, to win that approval which leads to social reward."

Disguised Expression. Sometimes the individual hits upon a good form of disguised expression. For example, the child whose urge to physical activity is blocked because of illness or a crippled body, may find outlet for his energy as well as status both in his family and among his peers by learning to draw, or to detect an unusual number of bird species, or to play a musical instrument. On the other hand, he may hit upon a poor substitute for finding the satisfaction he seeks. He may, for example, play up his weakness, trying to find in sympathy the attention from adults and peers which he cannot find in approval of accomplishment. Or he may escape into unproductive daydreaming† and tend to live more and more in the world of unreality, and, therefore, less and less in the world of productive action. This is a favorite way of running away from disagreeable situations. Harsh treatment of children who daydream will only force them to retreat still further and hence to daydream still more. Most children can be coaxed back into the world of reality by gradually increasing interest in things in which they can find success. The object with such children is to find something in which they can succeed and with which they can win love and attention, then gradually to widen the areas in which they can find constructive satisfactions.

Another form of disguised emotional behavior may be the development of physical complaints. When an individual cannot find satisfaction in successful action he sometimes tries to solve the problem by developing bodily inadequacies which offer a reason for the failure or which can be used as an excuse for not meeting a situation. One child, for example, developed a sick stomach every morning about half an hour before school time. In most cases a quiet insistence that the child face the necessary situation will provide the necessary help to him and he will eventually overcome his need to escape. This is possible, of course, only when the school situation can be made to provide him with genuine satisfaction. To the degree that the school situation continues to be painful and frustrating to him, he may return physically, but he will be sure to find other means of escape, as, perhaps, daydreaming in school.

One should, however, be careful about forcing children to face situations from which they seek escape. Sometimes children, especially in the first year or in the early years of school, have

* Parentheses ours.

† Some forms of daydreaming lead to action, serve as sources of inspiration, or the solution of practical problems. These are good daydreams.

been so poorly prepared for school entrance that they are emotionally unable to take the impact. Forcing such a child to face the situation may develop in him so deep an emotional association with fear and uneasiness that he may never learn to enjoy school and, therefore, to utilize his full intellectual potentialities in the situation. Such a child should be accompanied to school by a parent or older child, and should receive some special attention from the teacher until such time as his home in cooperation with the school, can grow him up enough to equip him to take school on his own. There is a difference between coddling a weak child into further weakness, and giving him a helping hand over a truly difficult situation. Parent and teacher should both learn the art of the latter, and should also develop the ability to detect a situation which requires a gentle, but firm insistence upon facing a difficulty. Force, like throwing a frightened child into the water to teach him to swim, will only result in a deeply associated fear of water for years to come, perhaps for life.

Another form of escape from frustration or failure is to make excuses which are not the real reasons for one's behavior. For example, the child who fails a fair examination because of lack of adequate study may claim that the examination was unfair, or that he could not study because he had lost his glasses. If he finds it difficult to recite in class he may convince himself that people who recite are "show-offs," or that silence displays more sense than to risk possible wrong answers. He may blame the broken desk or the torn book on someone else, or insist that the desk was broken before he occupied it. One should not jump to the conclusion that any child who appears to be offering excuses or "alibis" is lying or rationalizing. Sometimes the desk was broken when he occupied it, or someone else did tear the book. Few things upset a child or lose the parent or teacher real influence with a child or with the rest of the children in the room more than a false accusation of lying when the child is really telling the truth. On the other hand, children who habitually escape into rationalization should be given the help of a gentle but firm facing of facts. Some children can be helped by an appeal to the prestige and "manliness" of telling the truth and making adequate restitution for mistakes.

Some children follow the false pattern, which is not unfrequently set for them by adults, of attempting to build up their own prestige by attacking the prestige of others. Tattling, petty gossip, constant unfavorable criticism of others is almost a sure sign that the individual who does these things is insecure within himself and has resorted to a false means of building his own

sense of superiority. The idea seems to be that if other people can be made to appear stupid or vicious, then I am automatically better than they are. This is an unprofitable way of building prestige and usually results in the loss of friends, either actual or possible, which, if won to one would give the sense of belongingness and prestige or status which the individual feels he lacks. Children who use such false means of finding inner comfort should be helped to develop constructive means of winning and holding friends, and to learn constructive accomplishments which will give the status they crave.

Discipline of Children Must Guide Rather than Suppress.

We have seen what happens when emotion is suppressed rather than redirected. It is important that discipline should not be of the unduly severe type which sets off the autonomic nervous system or which forces the child to suppress or to cover up his emotion. It should, rather, be of the type which helps the child to understand himself as well as the world about him, which teaches him gradually increasing control and socialized expression. The object is not to avoid emotion, but, rather, to utilize and guide it. Some vigorous emotion is desirable, since emotion is at the root of all purposeful motivation and provides the energy, not only for inner personality development as we have seen, but also for all really uphill work. Constructive emotions need to be preserved. It is the destructive emotions which most need redirection and control. Parents and teachers alike have great influence upon the pattern and speed of the child's emotional development. Methods which stimulate rivalry, jealousy, material greed, fear, or revenge should be scrupulously avoided. Courage, desire for approval (if not overdone), sympathy (if not maudlin), love of fellows, joy in a hard job well done, and other such constructive emotions should be cultivated.⁹⁸

Emotion Is Contagious. Emotion is, of course, contagious in the sense that it spreads from person to person. A cross teacher soon has a room full of cross children; a fearful child may learn calmness from being near a calm child. Conversely, of course, a cross teacher may feel herself "healed" and quieted by the joy of being with her children so that she ceases to be cross before she has set them off; and a calm child may learn fear from a fearful child. The strength or valence of the emotion determines whether it will dominate another emotion or be dominated by it. Adults of normal emotional strength in dealings with children are, on the whole, stronger in emotional valence than are children, and can, therefore, set the tone of a group. Adults with weak character, of course, lose the control of even young children.

This should not be confused with the fact stated elsewhere that children imitate or are influenced by the opinions of other children so that they "stray" from the ideas set by parents. In the long run, the parental pattern dominates the totality of the child's behavior unless the parent is weak or loses the child by trying to use force on an arbitrary basis. In any given situation, the adult can more easily set the tone of gaiety or severity, of nervous tenseness or of calm than can a child. Teachers can develop an "atmosphere" in a schoolroom, even when the major trend of the atmosphere is contrary to the previous experience of the children. For example, a group of good workers can be made lazy by a slovenly teacher, or a disorderly group can become reasonably orderly, calm and busy; a fearful, evasive teacher will set an atmosphere quite different from that established by a courageous, direct personality.

Further aspects of the influence upon the child of his family, which is his most insistent immediate environment, will be discussed later.

DEVELOPMENT OF THE EMOTIONS

What constitutes emotional maturity is important for the understanding of emotional stability. Many forms of emotional behavior now called unstable by teacher and parents might better be described as immature forms of reaction.⁷¹⁰ A systematic account of the pattern of normal development of emotional behavior still requires more research than has yet been done. However, much has been learned to date. Some of the observations about patterns of emotional development follow.

As emotions develop there are changes both in the nature of the stimulus which proves effective in rousing emotion, and in the manner of the expression. Young children are roused to emotion by tangible events which impinge directly upon their senses. As the child grows older and as his capacity to perceive, to remember, and to anticipate events develops, we have seen above that he becomes emotionally responsive to signs and symbols which promise furtherance and guidance of his welfare and his wishes. He thus becomes increasingly able to control his impulses. As children grow older they will, if given adequate help by adults and if their lives are satisfying emotionally at each level of development, tend to outgrow certain infantile fears, angers, jealousies, joys and pleasures. They will not cease to be afraid or angry, or glad; but they will learn to be stimulated to fear by different, or more "grown up" situations. Their joy will be aroused by less childish things and will be expressed in

less childish ways. Expression will be less gross and explosive and will become more subtle and indirect; emotional states will be less transitory and more prolonged and even.^{101, 523, 529, 531}

The reduction of number and kind of emotional outbursts does not depend solely upon change of form of the expression of the emotion. Another aspect of the development of emotion lies in the nature of the emotion itself, as well as in the type of the stimulus which sets off the emotion. Fear, for example, may change to apprehension or uneasiness; anger may change to resentment; the "jump-up-and-down" kind of joy may change to pleasant anticipation. None of these emotions can be expressed as appropriately in direct outbursts as can simple fear or anger or joy stimulated by concrete situations.⁵²³

Progress in Crying. A number of studies of crying show that crying at first occurs with vigorous bodily movement, but by six months of age may occur without much bodily movement.¹⁶⁵ Crying results at first from internal causes, hunger leading the list¹² but in a few months is set off by such stimuli as continued handling or strangers,¹⁶⁵ by specific irritations or frustrations and by a wish for attention.³⁷⁷ There is also a reduction in the amount of crying from what may be as much as one or two hours a day at four weeks until at twelve to fifteen months, fussing or vocalizing may almost replace crying as a means of indicating discomfort or need for attention.

As children progress into the preschool years, social pressure reduces the amount of crying,¹⁰¹ and children cry less and less for reasons of conflict with playmates^{34, 274, 531} and for reasons of children's own falls and bruises, but more as an expression of anger when the child is hurt or thwarted by someone else.²⁷⁴ From eighteen months to three years there may be violent crying from temper, which diminishes progressively until at five years the crying is of shorter duration and may even be held under control, the tears being held back.³⁷⁷

As children grow through the school years, crying becomes less and less frequent. Particularly in the gang age is pressure exerted by the gang to keep children from being "babies." By six* years of age the child has often learned to be brave about real injuries to himself, but may still cry at small hurts, even though he may be called a "cry baby." By seven years he is sensitive about crying and ashamed to be seen crying, though

* These ages are average ages only and should not be taken too literally. They serve to show the approximate speed and pattern of the development of crying. This is also true of specific age levels mentioned below; they are simply approximate guides.

he may cry with deep sobs, as if broken-hearted, particularly if he is spanked or spoken to sharply, or merely if he is unhappy or cannot make up his mind. He may merely say, "I feel like crying." By eight years he cries still less, and usually does so only when his feelings are hurt. By nine years he cries only when his emotions are overtired, if his feelings are hurt, or if he is wrongly accused. Unfortunately we do not have such a systematic analysis of crying behavior for the later ages as that just recounted from Gesell and Ilg in, "The Child From Five to Ten."³⁷⁷ We do, however, know that ultimately crying among older children and adults, is limited to expression of grief (which is permitted, and in some cultures expected, in public) and to crying in private. Crying as a result of pain or annoyance is socially unacceptable in most cultures, as are outbursts of rage or overt expressions of fear.

Development of Anger. Goodenough³⁹¹ and Gesell³⁷⁷ both found infants responding with anger to minor physical discomforts, interference with physical activity; or removal of attention; or with situations which arose in connection with routine care such as dressing, bathing and the like. At eighteen months Gesell found tantrums caused by resistant objects, as well as by transitions from one activity to another, such as those imposed by necessary routines. At twenty-one months the cause of anger was often a failure to make the rudimentary language then at the command of the child understood by others. At two years of age, Goodenough found a large percentage of anger responses arising in connection with establishment of physical habits, with conflicts over authority, or with problems of social relationship particularly with playmates. Responses to minor physical discomfort and restriction of bodily movement were reduced by two years of age. Gesell, however, found anger responses at two and a half years still due chiefly to interference with physical activity or with possessions, with a noticeable reduction of anger for these causes appearing only at about three years of age. Difficulties with playmates as a source of anger reached a maximum between three and four years of age, though other social relationships continued to provide frequent reason for anger after four years.

Goodenough³⁹¹ reports that infants and young children respond in anger in a direct and primitive manner, but that as they develop the responses become less violent and more symbolic. Gesell³⁷⁷ found children of fifteen months expressing anger by throwing objects. At eighteen months they would throw themselves down, hit, kick or struggle as expression of anger; they were often rough with children or animals, would stamp or step on them, poke,

pull, or push them. At two years they may hit, poke, or bite other children, and at two and a half years they would often attack other children aggressively with conscious intent to hurt them. At three or four years language begins to take the place of physical aggressiveness as an anger response, the child often calling names, bragging or boasting, making angry, sarcastic, cutting or sullen retorts, swearing, tattling, or using irony or insinuations.^{175, 377, 531}

In groups of preschool children who have been together long enough to form a social group, one popular form of showing resentment against an older child is to exclude him from the group. Among children who have not been together as a group in the preschool years, this type of anger outlet may take place for the first time during the early elementary years. In any case it remains a frequent means of discipline of one child by another even into adolescent years. Gesell finds a period of less aggressive expression of anger at age five, but a renewal of violent methods of expression at six, with hitting and kicking as typical behavior. At seven, however, less anger aggressiveness seems characteristic; although kicking and throwing stones was observed. The child may now remove himself from groups, rather than try to force the withdrawal of others. By eight and nine years the "hurt feelings" expression of anger appears; in the normally growing child physical aggressiveness is almost at an end, being replaced increasingly from five years on by arguing, alibis, calling names or the making of disagreeable remarks. We see, then, that as children grow older in the early school years, anger reactions become more directed toward a single person and take the form of attempts to hurt the feelings rather than to injure the body of the offender. After-reactions, such as sulking and resentment, increase into the school years.

Socialization, or group play, increases steadily in the preschool years, reaching a peak of development in the early elementary school years, as we shall see elsewhere. *Quarrels increase as group play increases*, since children, playing by themselves, are crossed in the fulfillment of their ideas or are interfered with less than when other children are present, especially when the other children are sharing an idea or equipment in well-organized group play. An important part of the gang-age education lies in learning to maintain such close personal contacts without quarreling. With group contacts at a height, but with skill in social contacts only in the making, it seems evident that quarreling will be frequent and not too skillfully conducted in the late preschool and early elementary school years.

We have far less definite studies of the development of aggres-

siveness or anger in children of elementary and secondary school ages than we have in preschool children. However, there are many clinical analyses, especially those of the psychoanalysts which help us to build a fair picture of what the successive sequences of development toward "maturity" in anger are. In general we know that children pass through an early elementary school period of loudness and boasting, of gruffness and sauciness toward adults and toward each other. To a close observer this often appears to be whistling to keep up one's courage. Faced with adjustments to school, competition on school playgrounds (much larger and much more crowded than neighborhood lots or home yards), beyond reach of a quick run to mother—all this puts a good deal of strain on most children. They "woof," "boast," and bluster at each other, often finding that the louder the bluster the greater the success among their peers. They sound tough, trying to convince themselves as well as others that they *are* tough. The habit easily fixes itself, and comes stalking into home or schoolroom. More than that, the child seems to feel that what intimidates peers might possibly have the same effect on adults—one can only try it and find out. This disturbs adults, and gets children into trouble.

In dealing with anger in children it should be remembered that many outbursts of anger, especially in young children, are caused largely by the child's lack of skill in handling situations. Explosions of anger diminish in frequency and intensity as children gain skills in the performance of difficult tasks.¹⁰²² As we shall see later, many behavior problems occur at given stages of growth, being simply by-products of the lack of skill. Such behavior problems are best handled by quietly waiting for growth with its increase in skills and understanding. During the preschool and early school years when much of the anger displayed by normal children is due to the child's inability to handle a given situation, or to the pressure which adults put upon children for learning, adults should be as serene and tolerant as possible in dealing with children.

If discipline for anger behavior is too severe, children may too soon repress these forms of behavior with resulting accumulations of emotional tension and conflict. Control must, however, be developed by gradual, steady stages if the child is to outgrow childish behavior. It is interesting to note that children may submerge overt responses while they are still childish enough emotionally to feel angry over situations to which they have learned not to express anger in open behavior. Studies of the children's play.^{60 488} show that even young children release certain aggres-

sions or hostilities in play which they cannot release in the direct situation which roused the feelings. Many situations rouse anger or aggression in children,²⁸⁰ but, fortunately any healthy person, whether child or adult, can withstand a considerable amount of frustration without becoming chronically hostile.⁴⁸⁶

A great deal of understanding is necessary if one is to discipline children wisely. For example, children may appear to be very immature in anger reaction when, in reality, they are being pushed beyond reason. A task which is easy for one child may prove an intolerable burden to another, less able child, or to a child who has not had a background of learning in emotional control. Again, it is easier to achieve control when circumstances are favorable, as in the case of a child living in a small, well-regulated, peaceful and well-balanced family. The child who lives with a large family all of whom feel free to boss him, or several of whom are immature and overdemanding or otherwise emotionally unstable will find himself constantly interfered with and frustrated. Control of anger for the latter child is a far more difficult problem than it is for the former child. Children who are physically not up to par also have a more difficult problem of emotional control. Discipline should be adjusted to meet such situations. Parents should evaluate the home situation and the personal background of each child. Teachers should understand the home background and the individual situation of each child if they are to be of the greatest possible help in emotional development.

The Development of Fear. As in anger, both the stimulus to fear and the response develop. In infancy physical and immediate stimuli are the typical source of fear. Such stimuli are sudden noise; strange objects, situations or persons; situations, persons or objects associated with pain; sudden removal of support.^{377, 529} In general, anything unexpected seems to arouse the startle reaction in infants.⁵⁶¹ Such stimuli rouse not only the startle reaction but also fear reactions in most children up to two years of age. From two years to five, children are roused to fear increasingly by animals; the prospect of being left alone or abandoned by loved persons; dangers associated with the dark or imaginary situations; possible injury through fire, automobiles, etc.^{377, 523} The increase in such fears indicates the impact of our culture as a factor in determining emotional responses, since these are the things preschool children are typically warned against, or, in the wrong forms of discipline, threatened with as penalties for undesirable behavior.

As the child passes from the preschool to the elementary school

age he becomes more apprehensive about failure and humiliation. In other words as he develops courage and skill, he learns to fear less the threats to his physical body; but as his awareness of and reaction to social situations develops, he learns to fear threats to his prestige and to his ego.

Gesell⁸⁷⁷ found that children of six years show fear of the supernatural such as ghosts and witches, and of the elements such as thunder, rain, wind and fire. Some children also showed fear that the mother would die, or that something would happen to her. There was also fear of being late to school, which in the experience of the authors, is proportionate to the pressure exerted by the school for promptness and the penalties exacted for tardiness. By seven years Gesell's children were showing deeper, more worrisome fears such as fear of war, spies, burglars, people hiding under the bed. However they were beginning to resolve the fears by such methods as using a flashlight or getting some one to precede them into feared places. Such social worries as not being liked by parents, teachers or playmates appeared, the fear of being late to school persisted and fear of not finishing school work was added. Fears stimulated by reading, radio, and movies also appeared. By eight years Gesell found less fear of the elements, though fear of fighting, of failure, and of not being liked may still persist. By nine years he found his children worrying mostly about school failure, though some were worried about other competitive situations, as well as about trouble at home. Self-judgment is at this age so well-developed that some children also worried about their own mistakes. Zeligs¹⁰⁸⁷ in a study of sixth graders found that they were most frequently worried about matters of health, bodily injury or pain, school marks and grade promotion.

In adolescence the chief source of fears and anxieties shifts to sexual inadequacies such as physical inadequacies or other reasons to fear that one may fail in boy-girl relations.^{113, 673, 1085}

In both the elementary and the high school ages, the child's worry may be, and often is quite disproportionate to the likelihood of the actual happening.⁵³⁰ On the other hand, when actual disaster strikes, as in the severe bombings of World War II, children show an amazing capacity "to take it."^{110, 389, 532} How children "took it" depended far more upon the courage and morale of the adults near them than it did upon the actual physical experiences to which the children were subjected.^{10, 267, 532}

Associated or Conditioned Fears. Many fears of persons at all ages are not actual fear of many of the situations which seem to arouse the feeling of fear, but are, rather, associated fears. Once frightened by an object or situation, the individual tends

to feel fear of people, objects or situations associated with the original fear situation. For example, children who have been badly handled or who have had extremely severe pain in a doctor's office may thereafter display panic at all persons in white coats. Having been frightened by a dog at a given corner of the street, the child may become uneasy whenever near that particular corner. Having been embarrassed by a real or fancied awkward situation on a first or one of the early dates, an adolescent may thereafter avoid dating because of the uneasy feeling he gets whenever he contemplates a date.

Individuals differ markedly in their susceptibility to such nebulous or generalized fears. It has been observed that people who have a past history of many fears and of general emotional instability tend to react with more severe fright to a given situation and to generalize the reaction to more associated fears.⁵³² Also, there seems to be a "halo" effect following any severe fright; an individual who has, for example, recently been through a severe automobile accident is almost inevitably "jumpy" about situations which would normally leave him quite undisturbed. A child who has recently seen his drunken father beat his mother or threaten the children in the family will probably be distractable and nervous for a time. Children who are severely disciplined for trifles at home are usually less courageous and self-confident about everything they face than are children who have less reason to fear the consequences of their behavior.

Parental Fear Affects Children. Children are also responsive to the fears of their parents, either the fears parents have for themselves, or the fears the parents have for their children. These parental fears not only suggest danger to the child but, because the parent is fearful himself, parental fears undermine the child's confidence in the protection which his parent affords him.⁴²⁴

Some Reasons for Fears. Behind the fear of many children as well as grownups are feelings of guilt about some real or fancied offense against the authority of the parents, or, as the conscience develops, against the authority of their own consciences. As we have seen, children as early as eight years of age can worry about their own mistakes. In the fifth and sixth grades children report worrying about such items as "making your parents sad," being scolded, telling lies, doing wrong, etc.⁷⁹⁷ Psychoanalysts^{347, 349, 485, 590} call attention to fears which are rooted in a sense of guilt, especially those associated with impulses and conflicts related to sex.

People who have been ill frequently seem to exhibit more fears than other people who have been free from serious illnesses. This may be because children who are often ill lack physical

strength with the result that they feel less equal to emergencies. It may also be that children who are often ill sometimes feel the anxiety of their parents that they may die, and hence tend to carry a vague uneasiness which healthy children do not experience. Such submerged fear of death is frequent in children suffering from severe diabetes since they actually live in danger of death. It is also true of children who suffer heart ailments, although many of the cases of anxiety among rheumatic fever cases are due to misunderstanding and overanxiety of parents whose children are not actually in immediate danger of death. Deaf and blind children being less able to hear or to see and hence to react to danger, typically suffer more fears than do normal children.

Occasionally anxiety in a child is rooted in an overprotective attitude on the part of the mother. Protection, according to Levy⁶²³

... refers to the usual maternal protection of the child against physical danger, illness, exposure to bad influence, and the like. "Overprotection," in its specific meaning, consists largely of the mother's refusal to take ordinary risks for her child. She may not let him play with other children for fear, she says, of contagious diseases or of learning bad habits. She may allow the child to play with other children but only in her presence. . . . The indulgent mothers yielded to the demands of their children, allowing them to raise havoc with the rules of the household, rules relating to the discipline of time and speech and food and possessions. The indulged children were undisciplined in all these respects.

When the child is surrounded with protection from possible danger, both physical and psychological, he comes to feel that life is somehow a dangerous business. The result is likely to be vague uneasiness, timidity about many real and fancied situations, or outright fears. The solution to such fears is, of course, in part a change in the feelings and attitudes of the mother on the one hand, and in part an education of the child. Fundamental treatment of such a mother should probably not be undertaken by anyone less well trained in understanding of the basic personality drives than a psychiatrist. Environmental treatment of the child consisting of visits away from the mother, such as trips to summer camps or to relatives, and a development of the relationships with other children usually produces good results. Some demonstration to the mother of how to handle temper tantrums and disobedience, some broadening of her interests and increasing of her social contacts may help.

How Fears Are Overcome. Many fears appear and disappear in the course of normal growth. As the child develops fears about the dark, about traffic dangers, about being abandoned or left

alone in the preschool period, the normal course of growth which gives him greater understanding and greater competence tends to dissipate the fears. As he develops apprehension about failure in school in the school age, he may find that success is reasonably certain with good effort; or he may develop compensations for continued failure if his experience requires this. Much of what happens to him here depends upon the attitude of his family. As he fears social humiliation or sexual inadequacy in adolescence the achievement of social skills and success will remove the reason for his fear; or, if failure overweighs success, he may develop compensatory interests and activities. Difficulty arises when failure to achieve success, coupled with continued adult pressure, prevents the development of adequate compensations. The result in such cases is continued apprehension and emotional conflict.

Fears of unfamiliar things tend to yield to wider acquaintance with the environment and the growing awareness that new things may more often prove to be fun than dangerous. Sheer familiarity with new places and new situations which prove not to be dangerous removes the initial sense of apprehension with which many children react to the new and unfamiliar.

Many fears which arise in connection with some frightening event will normally fade through forgetting if there is no renewal of associations either by a repeated event or by continued reminders of the event by adults or other children. Frequently fear due to an unfortunate contact such as with an injudicious stranger will fade if not repeated, but will give way to happier experiences with strangers if such experiences are provided. Fear of dogs may, for example, yield to the love of one's own puppy if a puppy is given the child to care for.

There is much, however, that an understanding adult can do to help children overcome fears. A thorough check of physical difficulties and a reasonable program of physical hygiene may restore a child to the level of physical vigor at which he can feel equal to the demands of life. The acquisition of physical and mental skills increases the child's equipment for meeting life and tends to increase self-assurance. A check on the demands being made upon the child by adults or peers may reveal a source of anxiety lest the child fail in meeting his own or someone else's idea of success. An atmosphere of understanding and sympathetic appreciation along with the security of a fairly regular regimen does much to reassure timid children. Children who fear the unfamiliar may be made more courageous by a program of meeting new things and situations under the auspices of a friendly adult or older child. Explanation and preparation help a little, especially

if not overdone to the point where the child becomes suspicious that overpreparation for a situation implies danger. Explanation, however, is not nearly as effective as exposure to the situation under conditions in which the child feels secure and can develop familiarity plus a feeling of protection or security, or in which the situation proves so pleasant that the positive emotion comes to replace the negative. This process of "reconditioning" the child to a given situation may or may not be successful,⁵²⁹ since unless skillfully used there is a chance that the child may react to the situation so negatively that the actual negative emotion outweighs the planned positive emotion.

Poor methods of trying to overcome fear are ignoring it (although this is better than making too much of it); temporarily removing the cause; forcing the child to face the situation without providing him the security of a trusted adult or other child (such as thrusting him into a dark room "to show him there is nothing to be afraid of"); verbal pressure of ridicule. Any of these methods may intensify the fear.

The play interview technic in which a friendly adult helps the child to express hidden fears and to reorient his feelings toward feared situations is helpful.²²⁶ Play technics will be discussed later in this chapter. Learning to live with fear is important to ultimate mental health because the inroads of fear upon peace of mind and efficiency of living are great. Longtime or acute anxieties force one into a psychological position in which excessive amounts of psychic energy are absorbed or in which destructive defenses and compensations are built up.

The Development of Other Emotions. The development of emotions of love and sympathy will be traced in some detail later (Chapter 14). It is more difficult to trace the development of emotions other than fear, love, and anger since much less work has been done on them. Several studies of jealousy show what happens in behavior when the child is jealous, rather than how the emotion of jealousy develops. These studies^{624, 847, 873, 908} show that when children are jealous of a younger sibling they may revert to infantile habits, such as wetting, demands to be fed or dressed, even when they can care for themselves. Or they may take out the suppressed hostility felt toward the baby by scolding or punishing a doll, or in other ways give vent to feelings which they may not express openly. Occasionally the behavior takes the form of unwonted displays of affection toward the baby as a cover-up; or the child may bid excessively for adult attention by excessive affection or helpfulness, or by tattling or lying. Sometimes the behavior is varied and unpredictable, the child

being troubled, trying any and every means of meeting his problem. In fact, none of the studies reveal any behavior which is typical of jealousy alone; all show behavior which could exist in a child troubled by any type of troubling situation.⁵²³

Studies of laughter and humor^{130, 165, 377} show evidence of laughter in the early months of life which resulted as a rule from a gay approach or from nursery tricks on the part of an adult. At two years Gesell³⁷⁷ notes that the child may himself initiate humor, and may carry on such a game as peek-a-boo even without adult support. At two and one-half, the child may be handled by humor, such as an answer of "yes, yes" to his "no, no"; by seven years this ability to be handled by humor has disappeared. In the preschool years laughter is associated largely with bodily activity and social play,^{123, 274, 377, 577} and with feelings of well-being (running, romping, chasing), exciting physical contacts such as tossing and tickling, opportunities to be self-assertive, and other such physical or ego-satisfying occasions. Gesell³⁷⁷ reports humor at three and one-half years which is involved in imaginary play; at four years humor is likely to be silly and boisterous, wild laughter sometimes accompanying play; at five the child enjoys slapstick humor, which he initiates. One study⁶⁰⁵ showed humor at the preschool level in response to inferiority in others, and one⁹⁹ showed laughter in nursery school children when a conflict which had lasted or kept the child on "the horns of a dilemma" had been resolved.

One study⁶⁰⁵ of children from seven to eighteen years of age concluded that the development of the sense of humor parallels the development of both intellect and other emotions than humor. This study, which was done on English children, showed that the most frequent sources of humor in children of seven to ten years of age was deviation from the normal; at eleven to thirteen years. discomfiture of other people and deviations from the normal. From fourteen to eighteen years there was increased appreciation of verbal humor. Other studies^{158, 461} corroborate this in part, in showing that incongruities and distortions of pictures create laughter in young children.

Gesell³⁷⁷ shows a development of humor which corroborates one's own observations of children of elementary school age, namely, that they are not only reactive to the type of incongruity, frailties, inferiorities and failures of others as shown by the above studies, but that they are also reactive to less negative aspects of life. He found, for example, that although children of eight years enjoy the type of humor in stories in which one person is fooled by another, thus making someone uncomfortable, by nine

years they enjoy the element of surprise in stories and even begin to enjoy jokes on themselves. General observation of children of the upper elementary school years shows how much these children enjoy broad puns and other plays upon words. Already they are capable of enjoying many of the radio humorists put on the air largely for adult consumption. If the child's sense of humor is growing as it should, it should give way to the development of the sense of sympathy for others, and the inclination to laugh at the discomfort of inferiority of others should wane. Most emotionally "mature" adolescents have learned not to laugh at such situations, and even to feel discomfited themselves when others do so.

The possibility of being amused at jokes which concern bodily elimination and sex develops as the child develops repressions about either one, or as he is led to think that such jokes show grown-up humor. Such jokes are particularly likely to be exchanged among boys in the later gang age and adolescence. Young people whose sex education is sound, and whose appreciations and interests are widened into varied and wholesome channels, soon grow beyond the desire to spend time on such types of humor.

Behavior Problems. Space will not permit a long discussion of behavior problems. It is important, however, to point out that many so-called behavior problems are merely aspects of normal growth. As we have seen above, explosive expression of emotion is characteristic of very young children. Crying is normal at the early levels of development; anger at physical restriction or thwarting of immediate desires is characteristic of early preschool levels; fears are usual and of various types throughout the childhood period. In the process of development from childish ways of expressing emotion there are many stages at which behavior is explosive, resistant, or fearful. Parents and teachers who understand children will know when such behavior is a phase of growth and when it is a symptom of something wrong in development.

True behavior problems are those forms of behavior which indicate that something is wrong with the child himself or with the environment in which he lives. For example, perseverance of an early form of emotional behavior into later ages, such as crying over minor physical hurts at six or eight years of age, or bursting into anger over simple frustration at five or six years of age would indicate that the child is not developing in these categories since he is behaving as a much younger child would. This may be an indication of a basic retardation in general growth, as would be true of a feeble-minded child who, even with expert treatment, lags behind the normal rate in all areas of physical and psycho-

logical control. Or it may be an indication of wrong treatment of a potentially normal or superior child by the adults who have charge of him. We shall refer throughout the book to the types of behavior which, though troublesome, are merely aspects of growth as it occurs within the framework and under the pressures of our particular social culture. When behavior cannot be understood in terms of a passing stage of growth, or a fairly normal attempt on the part of the child to orient himself to the reasonable frustrations and pressures of life, then the reason for the retardation or the deviation should be sought. If the behavior is excessively immature, excessively explosive, or excessively withdrawn the services of a skilled guidance person (preferably a child psychiatrist if one is available) should be obtained.

Projective Methods of Studying and Treating Behavior.

As was said above, children move forward in emotional growth from more overt and obvious forms of expression of emotion to more subtle and socially acceptable forms. As they do this it becomes less possible to judge what their inner feelings and reactions are. If one is to understand and to help children it is important to know what motivations and feelings are potent in determining their behavior. The fact that children sometimes reveal feelings and motives in make-believe settings or in play situations has led to the use of projective methods for discovering inner feelings and to the projective or play technic for helping children to straighten out inner conflicts which lead to difficult behavior.^{60, 342}

The projective, or play technic, analyzes children's attitudes and feelings through studying their play, their drawings and paintings, their stories, or any other creative activity.* It is also used as a means of helping children to overcome inner conflicts and tensions by making it possible for them to express through play or in the special circumstances set up by the therapist, the ideas and feelings which their environment will not permit them to express otherwise. The basic assumption behind the use of this technic is that children express their inner emotional needs through the form of their work or play if they are permitted to do so. Particularly in free, creative work does the child utilize his clay, or paint, or blocks, as a means of expressing inner wishes and inner conflicts. He does so, too, in free play, utilizing games, or dolls, or imaginative situations to say what he dare not or cannot say directly. Intelligent and understanding study of the

* A particularly comprehensive bibliography on projective technics can be found in Sargent.⁸⁵⁷ Further items may be found in our bibliography.^{265, 266, 342, 724, 725, 726, 924, 1075}

creative work and free play of individual children reveals much of their inner emotional life. Properly interpreted, such "projections" of the child's self into his work or play can help teachers to understand and to guide individual children who may need special help. Through the use of the projective technic with children, teachers are urged not only to interpret children's work and play, but also to provide special opportunity for creative work and free play which can be utilized by children for expression and, therefore, relief of inner conflicts. Properly directed, such "corrective" work or play can be used as a means of correcting emotional difficulties.

There is a natural temptation for amateurs or novices, people who have just discovered, for example, that "a stormy picture" may, on occasion, mean "a stormy inner life," to "interpret" everything children do. This is a great mistake, since accurate interpretation of the meaning of "projected" emotions requires expert training. Far more harm than good results from false interpretations; so that, unless the teacher is especially trained, she should not attempt to interpret seriously, or to correct the deeper-lying emotional conflicts of individual children. As soon as possible, however, every teacher who presumes to do even a reasonably adequate job of personal guidance with her children should become familiar with the potentialities of projective technics as a means of understanding and helping personality growth in her pupils.

QUESTIONS FOR CLASS STUDY

- I. Visit some children at play. Select the child who seems best adapted to his group, and the child who seems most poorly adapted.
 1. How does each of these children handle his own emotions? What emotions does he display? (Watch closely for the less obvious emotions.)
 2. How does each of these children handle or respond to the emotions of others, both adults and children? What conflict situations do you see?
 3. Which of the basic needs are being fulfilled for each of these children? Which frustrated and repressed? How do you see this reflected in their behavior?
 4. What strains and what satisfactions are each of these children experiencing in the current week of their lives?
 5. Does the physical condition and the daily routine of these children reflect in their emotional behavior?
 6. Is there anything you could or should do about them if you were their teacher?
- II. Trace your own emotional history, or that of someone you know well. Which of his emotions are functioning on a mature level for his age? Which on an immature level? What circumstances produced the maturity, or prevented it? How strong do you think his psychological constitution is?

- III. Keep a diary for several days of your own feelings of anger. What caused them? What did you do in each instance? What should you have done?
- IV. Do the same for feelings of fear and anxiety. Can you trace the reasons for these fears and anxieties?
- V. Look up the current literature (from 1945 on) for further development of projective technics, or other methods of studying and treating behavior of children.
- VI. Look up current literature (from 1940 on) for studies of the development of constructive emotions such as joy, sympathy, and love.

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4. INFLUENCES ON GROWTH

Nutrition and Routines

The potentialities for growth, as determined by heredity, cannot be realized without adequate food and conditions favorable to the physiological processes which convert food into body tissues. Even the life processes of the cell, or the beginning of life, depend upon specific chemical substances which are present in the cell. As the cell multiplies and differentiation takes place, different types of cells acquire different structures and, therefore, have specific needs. Bone, for example, must have calcium and phosphorus in relatively large quantities for its growth. Muscles demand proteins and certain inorganic salts while nerves require, among other things, a fairly large supply of fat-like substances, called lipins.

Going hand in hand with the structure of these tissues are their functions. These functions depend upon the constitution of the tissues plus the materials which are brought to them by the fluids in which they are bathed. Thus the normal beating of the heart depends upon the concentration of the calcium salts, and the quantitative relationship of calcium to sodium and potassium in the fluid which bathes the heart muscle. Nerve irritability, also, is dependent upon these minerals. The secretions of the digestive tract, and of the endocrine glands require supplies of specific substances as will be shown later.

Food, the source of these necessary materials, becomes all important for the mother during the prenatal period and for the child after birth in providing the body with its needs for growth and activity.

EVIDENCE THAT FOOD AFFECTS HEALTH AND GROWTH

There is substantial evidence that food affects health and growth. This evidence has accumulated through studies of the dietary habits of groups and their growth, and in investigations of the effect of dietary changes upon the health and growth of individuals.

Dietary Habits and Physical Status. A study of the relationship between man's natural diet and his physical status has been presented by Orr and Gilks.⁷⁶⁰ Two African tribes, the Masai and the Akikuyu, live side by side but have very different dietary customs. The Masai live largely on meat, milk and blood. Various roots and barks are used for "teas." The pregnant women are sent into the bush to eat berries. This diet is rich in growth-promoting substances. The Akikuyu diet consists chiefly of cereals, tubers, plants, legumes and green leaves. This diet is limited in growth-promoting substances, especially calcium. The men eat chiefly corn, sweet potatoes or other cereals and tubers. The young children, up to five years of age, are given edible earths from salt licks and ashes of certain swamp plants. One of these earths is especially high in calcium. The girls continue to use these sources of minerals and also have a monopoly of some kinds of green leaves rich in calcium. Even with the supplements for children the Akikuyu diet is not adequate for the best growth.

Comparing the adults, the mature Masai male is, on the average, five inches taller and twenty-three pounds heavier than the mature Akikuyu, and his muscular strength is 50 per cent greater. Deformities of the bones, decayed teeth, spongy gums, anemia, pulmonary diseases, tropical ulcer and other diseases fostered by poor nutrition, are more prevalent among the Akikuyu than among the Masai with a better diet. A study of the children up to eight years of age showed that more than 60 per cent of the Masai boys and girls were rated very good in general physical condition, while only 7 per cent of the Akikuyu boys and 29 per cent of the girls were so rated. The value of a better diet is shown not only in the comparison of the two tribes but also in the difference between the boys and girls of the Akikuyu tribe. Further evidence of the inadequacy of the diet for promoting growth is shown in the comparison of the growth of the Akikuyu infants with that of English babies. It is found that during the first month the Akikuyu infants are about half a pound heavier than English babies. For ten months the rate of growth of both is similar. After ten months the rate of the Akikuyu infants is slower and at thirty months they are about 8 pounds lighter than the English. This is one of many examples cited in the literature on nutrition which indicate that differences in dietary habits among races and groups of people contribute to differences in physical status.

Such observations of the dietary habits and growth and health of a people suggest that differences in growth patterns in families and groups of families may have some dietary as well as hereditary basis. It seems probable that family food patterns carried over

from one generation to another may be contributing to the differences in the growth of children. Generally speaking, children of today are taller and heavier than children of former generations^{692, 693, 695} and are maturing earlier.^{400, 702} Nutrition is thought to be one of the factors associated with this increase.

In this period when children have been growing more, there have been shifts in the relative importance of various foods which have been consumed in the United States.⁹⁴⁹ There has been increased consumption of dairy products, fruits and succulent vegetables, on the credit side, and refined sugar, on the debit side. These trends, except for the sugar, have enriched diets from the nutritional point of view, and indicate that people are eating more of foods which are important in promoting health.

There are vast differences in the food eaten in families. Income, family size, and management are factors contributing to these differences.⁹⁴⁹ Many families have inadequate food. In 1936 Stiebling⁹⁵⁰ found that one-fourth of the families she studied had good diets, while about one-third had poor diets. More than two-thirds of the families, therefore, had inadequate diets. Along with this picture goes that of an unnecessarily high incidence of mild and moderate malnutrition among the children of this country.⁷³⁰ Many of these children were caught in the depression and have lived on restricted diets all their lives. Studies of differential growth in the different socio-economic levels point to nutrition as a contributing factor. More information regarding the longtime effects of diet upon human beings is needed.

Effect of Milk upon Growth. Several studies demonstrating the effect of a milk supplement upon growth have been made. A study in England, one in Scotland and several in the U. S. A. testify to the value of milk in promoting growth. Dr. Corry Mann⁶⁷⁰ carried on a four-year experiment in an institution for poor English boys. Boys from six to eleven years were divided into seven groups. One group received the regular diet of the institution. The other groups received daily supplementary food as follows: (1) a pint of milk, (2) sugar equivalent in caloric value to the milk, (3) New Zealand butter from grass-fed cows, giving the same caloric value as the milk, (4) margarine equivalent to the butter, (5) edible casein furnishing 65 extra calories, (6) three-quarters of an ounce of fresh water cress. The average gain per year during the four year period for the group receiving the regular institutional diet was 3.85 pounds and 1.84 inches. The milk group made the best progress, gaining 6.98 pounds and 2.63 inches. The extra protein in the form of casein (protein found in milk) made practically no difference in weight or height. Extra calories in the form of

sugar, or margarine, increased weight slightly but made no difference in height. The water cress and butter made a slightly better showing than the sugar. Thus the improvement was due neither to the fuel value nor to the protein alone but to the specific qualities of milk as a food.

This study led to a series of extensive studies on the influence of milk consumption on the growth of school children in Scotland,⁶¹⁹ which demonstrated that the addition of milk improved the physique and general health and increased mental alertness. Toward the end of the experiment the head teachers of the school were asked to give their general impressions of the effect of the milk upon the children. They spoke of "an increase in the bloom of their cheeks and the sleekness of their skins," and one teacher added "in the playground buoyancy and pugnacity are developing to an alarming extent."

In this country, the growth of institutional children has been improved by adding milk to their diet. Roberts, MacNair and their co-workers^{650, 839} tested the efficacy of a milk supplement in improving growth in height and weight and bone development of children between the ages of one and fifteen years over a period of one year. Small but consistent differences in height and weight gains between the experimental group receiving a quart of milk daily, and the control group receiving a pint of milk were noted. There were likewise differences in bone development between the groups.

Addition of a Cereal Rich in B₁ and Iron Produces Increased Gains in Weight and in Hemoglobin. Sixty-five children between the ages of five and fourteen years, about evenly divided between boys and girls, were used to show the effect upon growth in weight and upon the amount of hemoglobin in the blood when a cereal mixture high in iron and vitamin B₁ was substituted for a regular cereal.⁸⁴⁸ The children were divided into three groups: group 1 having added to their regular diet for breakfast 3 ounces (dry weight) of oatmeal or cracked wheat; group 2 having, in addition to the regular diet, 6 grams of a vitamin B₁ concentrate from wheat germ and brewer's yeast; group 3 having, in addition to their diet, 3 ounces of a special cereal mixture.* After a six month period those in group 1 had gained 3.6 pounds or 0.3 pound more than the expected weight gain. Group 2 had gained 5.5 pounds or 2.5 more than the expected. Group 3 made the best gain in weight, 7.8 pounds, which was 4.7 pounds more than the

* Special cereal containing farina, 53 per cent; oatmeal, 18 per cent; cornmeal, 10 per cent; wheat germ, 15 per cent; bonemeal, 2 per cent; brewer's yeast, 1 per cent; alfalfa leaf meal, 1 per cent.

expected. Hemoglobin gains in group 2 were between two and three times greater than in group 1; in group 3 the hemoglobin gains were between four and five times greater than those in group 1.

NUTRITION AND MENTAL DEVELOPMENT AND PERFORMANCE

That nutrition affects mental development is still a moot question. Relationships between quantitative and qualitative deficiencies in the diet and mental development are difficult to evaluate in humans because of the many factors, including cultural, which cannot be controlled and which may be correlated both with the diet and with mental development. There have been some experiments,^{85, 675} however, with rats and a later experiment with children⁵² between five and nine years of age, which suggest the possibility of a dietary deficiency in the vitamin B complex affecting capacity to learn. While all the children showed some gains after yeast had been added to an extremely poor diet, the authors point out that it cannot be determined whether these gains were due to (1) maturation, (2) practice, or (3) improved neurological state arising from the added vitamin B.*

Two recent experiments^{9, 1088} in feeding glutamic acid (one of the amino acids from proteins) to mentally defective children have produced improvement in intellectual performance. When the acid was withdrawn all improvement disappeared. These experiments, along with the others already listed, need to be verified by further research before their results can be accepted as conclusive. We must await further experimentation in all aspects of this problem.

However, the evidence of the effect of nutrition on the child's *ability to achieve*, namely, upon his effective working capacity, is more convincing. It is reasonable to assume that lowered vitality and energy from lack of adequate amount or kinds of food would have some effect on the physiological efficiency, since activity, physical and mental, is dependent upon the supply of energy at the disposal of the child.

The effect of prolonged subsistence on a diet inadequate in quantity and quality is demonstrated by Blanton's⁹⁵ observations of school children in Trier, Germany, following World War I. The study was undertaken because teachers complained of the mental deterioration and increase in nervous disorders among the children. These children had been on a rigid, inadequate diet for three and a half years. The teachers reported that the children had

* See also Nutrition Review, 5: 135-137, 1947, for a review of some further studies on intellectual functions with restricted intakes of B complex vitamins.

less energy for mental work, were unable to concentrate, were slower in comprehension, had poor memories, were inattentive and restless. One teacher reported that she could keep the attention of her class for only five minutes in contrast to thirty minutes formerly. After a short time, the children would talk, laugh, and wriggle. The standard of school work was lowered. The number of children who failed to pass was about doubled; the number of children doing superior work was cut in half; and the number doing distinctly inferior work was increased from 20 to 30 per cent.

In spite of this poorer mental accomplishment, most of the children apparently had not lost any of their mental capacity as measured by the usual mental tests. Children of good mental background, when tested in the morning for short periods when they were fresh, rated good or superior intelligence. The quality of their school work was not compatible with their mental capacity. They became tired easily and lacked the staying qualities found in a well-nourished child. The children with less adequate mental endowment were more seriously affected by the deprivations caused by the war. These children, according to Blanton, showed a reduction in their mental capacity as well as in their achievement capacity.

That an adequate breakfast is a good beginning for a school day was demonstrated by Seymour and Whitaker⁸⁷⁴ who showed that an adequate breakfast in place of tea and bread for a group of underprivileged children was followed by improvement in their school work. During the experiment, those receiving the good breakfast gained 7 to 10 per cent more in arithmetic and English than did the children having a poor breakfast, and also improved more in standardized tests such as cancellations. It took ten days for this improvement to become noticeable and the test scores dropped again within a week after the school breakfast was discontinued. As in all experiments of this kind, it is difficult to attribute the improvement solely to the improvement in nutrition. Better rapport or stronger motivation due to the special attention given these children might have contributed to this improvement. However, it seems reasonable to assume that with an adequate breakfast children have more available energy with which to attack the day's job. Bills⁹¹ also reported increased mental fatigability among malnourished children. Children who lack energy from malnutrition, who have one or another barrier to efficient work and enjoyment of life, cannot make good use of their school hours.

Harrell^{437, 438} has reported a study of the effect of adding thiamine

to an orphanage diet upon the mental performances of the children. One of the two groups of matched children was given a daily supplement of 2 milligrams of thiamine; the other group received a similarly appearing pill which contained no thiamine. Both groups were given a series of tests at regular intervals. The results indicated improvement in performance after thiamine had been added to a diet containing about 0.9 to 1 milligram (the amount accepted as a fairly good allowance). At the end of six weeks, the vitamin-fed group surpassed the control group in average gains in every task. The superiority of gains ranged from 7 to 87 per cent and the average for all was 27 per cent. Some differences were not significant but all were in the same direction. In the second period of one year again the vitamin-fed group surpassed the controls in all groups. For eight of the tasks there was a significant difference between the groups. In the third period of one year, when some of the children, without their knowledge, were reversed in the groups, it was found that for those in the unreversed pairs the vitamin-fed group continued their superior gains. In the reversed pairs the group, who no longer had the additional thiamine, gained less than the thiamine fed group in seven tasks, but failed to show adverse effects of the withdrawal of thiamine in intelligence tests, educational achievement, reaction time and height and weight. It is thought that possibly the effect of the thiamine taken during the previous year held over into the second year. The author concludes: "The cumulative effects throughout a life-time, however, may nevertheless spell the difference between alert, successful living and a marginal effectiveness."⁴³

That characteristic feelings and attitudes are associated with a thiamine deficiency has been demonstrated by studies of Williams, et al.^{1062, 1063} In a scientifically controlled experiment, a group of normal women were given diets in which the intake of thiamine was reduced one-sixth to one-tenth of the normal requirement.* Within two or three weeks, these formerly cheerful people became morose, uncooperative and disinterested in their work. They developed progressive feelings of inferiority, irritability, depression and anxiety. In addition, their mental and physical efficiency were impaired. When thiamine was added to their diet, these women became their normal selves once more. In a later study,¹⁰⁶³ in which the deficiency was less (about one-third of the recommended allowance) and extended over a longer time, similar symptoms developed. It seems reasonable to believe that children deprived of thiamine would respond similarly. In most schools children can be found who are living on diets inadequate in thiamine and, therefore,

* Recommended allowance is 1.1 to 1.5 mg. for women.⁷³³

it seems worth while to bring this experiment to the attention of adults working with children.

Thus we see from these experiments that nutrition has a role to play in promoting optimum growth and "positive" or "buoyant" or "better-than-average" health in children.

NUTRITIONAL NEEDS OF CHILDREN

There are two fundamentally different kinds of food needs, termed *energy requirements* and *structural requirements*. The body requires energy for many activities, such as beating of the heart, breathing, digestion of food and voluntary muscular activity. Energy is also needed for growth. This energy requirement, expressed in calories (total calories or calories per pound of body weight), is obtained chiefly from carbohydrates and fats.

The Energy Requirement. The amount needed varies from individual to individual. It differs with *size*. A large child requires more energy-producing food than a small child. A girl 52 inches tall will have an estimated requirement of 32 calories per pound. If she weighs 64 pounds she will need 2048 calories. A girl 48 inches tall, however, will have an estimated requirement of 34 calories per pound. If she weighs 52 pounds she will need 1768 calories.¹⁰³³ This energy requirement differs also with the *rate of activity of the body processes while at rest*, that is, with the basal metabolic rate. The faster the rate of basal metabolism, meaning the faster the heart beat, respiration, etc., the greater the number of calories used in a given time; and, conversely, the lower the rate, the lower the number of calories needed.

The energy requirement differs, too, with the *amount of voluntary activity*. A very active child requires more calories per day than a quiet one. Standing was shown to increase the energy output of school children 80 per cent over the basal metabolism. Dancing increased it 547 per cent in the same children.⁸¹ The caloric output of boys in a classroom may be 75 per cent above the basal, that of girls about 50 per cent.⁹³² It differs also in accordance with the *efficiency of the body in using foods*. Some bodies are more economical in the use of foods than others. In some cases food is more easily digested and absorbed than in others. In all individuals some food value is lost in bowel movements, but the amount varies considerably from child to child. Finally, the need for calories depends on the *rate of growth*. The fast-growing child will need more calories than the slow-growing child. The periods of his life when the impetus to grow is most intense, during infancy and pubescence, the amount of energy required for growth will be greatest. It is not surprising that the baby eagerly demands food and that parents

of pubescent children complain that their boys and girls cannot be filled up. At the present time, there are no figures for the growth quota but, with the exception of the period of most rapid growth, 10 to 15 per cent of the basal requirement probably represents the growth requirement fairly well. In order to permit growth there must be a surplus of energy over the actual energy expended by the body.

In proportion to their weight, children's food needs are greater than adults, due to children's relatively greater basal metabolism,

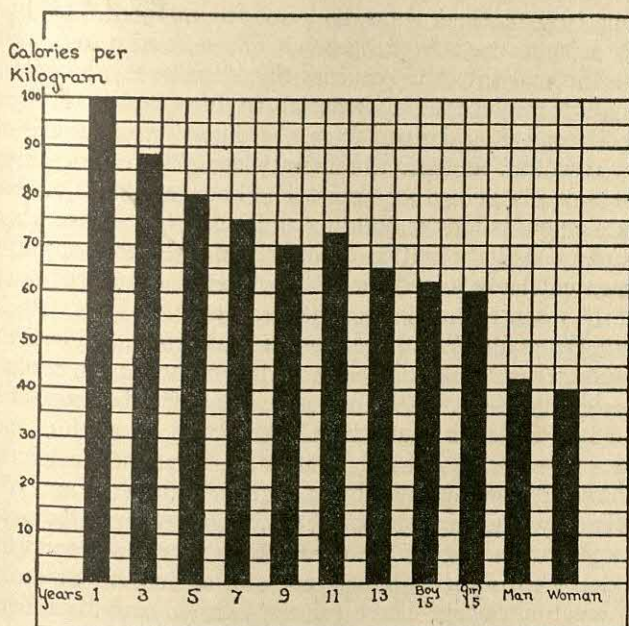


Fig. 23. Total daily energy requirement of children compared with a moderately active man and woman on the basis of calories per kilogram per day. (Rose: *The Foundations of Nutrition*, by permission of the Macmillan Company.)

their tremendous activity and their growth. Figure 23 depicts the differences between children and their parents in which the figures for the father and mother are averages for moderately active persons.

If sufficient food is available and the child is well and has a good appetite, he will meet his energy needs. A well-rounded diet, with emphasis on the "protective" foods, as discussed later, will include sufficient calories.

The Structural Requirement. The structural requirement covers the needs for materials which go to make up tissues and to regulate the functions of those tissues. The child does not require all the chemical substances which he uses for building tissues in a ready made form; he can make some of them himself if given the necessary materials from foods. The necessary food elements, or nutrients, are at least 31 in number. Proteins, when digested in the body, are broken down into smaller chemical substances called amino acids. The body has the ability to synthesize, or build up, some of these but, at present, it is known that at least 8⁸⁴⁶ and probably 10⁴⁷⁷ of them must be provided in food. The body is unable to make them from other chemicals, and a lack of these prevents normal growth. At least one digestive product of the carbohydrates, glucose, is essential to life. Some unsaturated fatty acid, or acids, derived from the digestion of fats, is nutritionally essential. At least 13 mineral elements are necessary, and at least 8 of the known vitamins. The body needs all of these in adequate amounts for the building and repair of its tissues and for these tissues' daily activities. Since all foods do not contain all of these nutrients, a balanced diet of "protective" foods, that is, foods rich in the essential nutrients, is necessary.

Some Ways in Which Minerals Function. Minerals serve as *constituents of tissues*. Calcium and phosphorus are responsible for the rigidity of the bones and teeth. The softer bones of children contain less minerals than the firmer bones of adults, and the process of hardening, called ossification, demands calcium and phosphorus in generous quantities. An inadequate amount of these minerals may result in poor teeth and poorly formed bones. Poor teeth are a barrier to good health and attractiveness. Poorly formed bones detract from the attractiveness of an individual and limit his physical efficiency. These minerals, together with others, are also a part of the soft tissues of the body, such as muscle, nerve and blood cells. Phosphorus and iron are necessary components of every living cell, in both the nucleus and cytoplasm. Phosphorus is an important element in muscle, glandular and nervous tissues. Iron is a part of hemoglobin, that substance in the red blood cells which makes it possible for oxygen to be carried from the lungs to the various parts of the body and for carbon dioxide to be removed, thus serving in the function of respiration and contributing to the life activities of all the tissues. Iron cannot be available for this function unless copper is present.

Minerals serve as *regulators of body processes*. The part played by minerals in the beating of the heart and in the activity of the nerves has been mentioned. For coagulation of the blood the body

needs calcium. Too little calcium in the blood at the time of an accident may result in excessive bleeding and perhaps death. Phosphorus takes part in the chain of events in muscle contractions and in the transfer of energy. The digestive juices, such as salivary, gastric and intestinal juices, depend upon minerals for their acidity or alkalinity. Digestion depends upon a condition of acidity in the stomach and alkalinity in the intestine. Minerals regulate the flow of liquids in the body by which substances are absorbed, passed to and from body cells and excreted through kidneys or intestines. Iodine is a part of thyroxin, the hormone of the thyroid gland. Without iodine the proper functioning of this gland, normal growth and the maintenance of health are impossible.* These minerals play many and varied roles in the body. Their importance cannot always be gauged by absolute amounts. Relative amounts or the balance between these minerals must be considered as well.

Some Ways in Which Vitamins Function. The vitamins, as regulators of body processes, have a vital role to play in keeping children well and furthering their development. The vitamins now recognized as contributing to the health and growth of children and youth are vitamins A, D, C, K, thiamine, riboflavin, niacin and folic acid. There are other vitamins of undetermined significance including vitamin E, the value of which to man has not been definitely established, although in animals it has been demonstrated to be necessary for reproduction and for the health of muscles and nerves. It is also believed to protect some substances, such as vitamin A, from oxidation. Vitamin K aids in the formation of prothrombin which is associated with the mechanism of blood clotting. Sufficient amounts of K to meet human needs are produced by bacteria in the intestines except shortly after birth, before the intestinal flora has been established, and possibly during prolonged treatment with sulfa drugs.

Vitamin A, itself, or carotene, its precursor, which can be converted by the liver into vitamin A, is associated with the ability to see in dim light. A lessened ability to see after the intensity of the light has been changed (night blindness), which is an early symptom of a shortage of A, has been demonstrated and corrected in school children, indicating that when vitamin A shortage exists the condition can be corrected by adequate diet.⁵¹²

Vitamin A is also necessary for maintaining the health of epithelial tissue, namely, the tissue of skin, covering of the eye, the lining of the respiratory, alimentary and genito-urinary tracts. A deficiency of vitamin A structurally impairs what the Journal of the American Medical Association called "the body's first line of

* See the discussion of the thyroid gland in Chapter 2.

defense." With the change in epithelial tissue local infections occur and bacteria may penetrate through the walls of the injured membrane which is no longer able to resist their invasion.

... there is much positive evidence that the level of intake of vitamin A does (whether directly or indirectly, primarily or secondarily) influence the frequency, or severity, or duration, of infectious disease—not specifically of any one infection alone, and also not equally of all infection.⁸⁸⁰

Vitamin A is also necessary for the development of the enamel of the teeth. Given the other necessary elements—calcium, phosphorus, vitamin D—but a deficiency of vitamin A, the cells responsible for the laying down of enamel will not be able to perform their function satisfactorily and defective teeth result.

Vitamin A is necessary for the function of bearing children and providing them with milk in the early months of their lives. Large amounts are needed for this purpose and since vitamin A can be stored in the body, a generous supply during adolescence may be one of the many ways in which youth may prepare for a full and enriched life in maturity.

Vitamin D is essential for the normal growth and mineralization of the bones and the teeth. The body cannot make proper use of the calcium and phosphorus supplied by food unless vitamin D is present. Rickets in infancy, and occasionally in adolescence, dramatically demonstrates failure in calcification. In addition to preventing the condition of rickets, a liberal amount of vitamin D tends to promote growth, provided there is sufficient calcium and phosphorus to meet the needs of growth of soft tissues and bones. According to some infant studies,^{510, 907, 947} there appears to be an optimum of vitamin D for promoting growth beyond which increasing the D has a depressing rather than a stimulating effect upon growth in length. This effect of D on the rate of growth of bones in infancy would point to the need for sufficient vitamin D throughout the growth period. The need for vitamin D in older children has also been demonstrated.⁵³⁸ This need for D in promoting growth is one reason for prescribing cod liver oil or some other fish liver oil for infants and children.

Together with other factors, vitamin D is of importance in the formation of normal teeth and protection against dental caries. The fact that calcium and phosphorus constitute a large percentage of tooth structure is indicative of the importance of vitamin D in its formation. Vitamin D is also a contributing factor in the prevention of dental caries.⁵¹¹

Thiamine is one of the vitamins in the B complex. Three others now known to be associated with human nutrition are riboflavin.

niacin and folic acid.* Thiamine is essential for the maintenance and normal function of the nervous system. It has been known for some time that beriberi, a disturbance of nerves, can be prevented by including sufficient thiamine in the diet. In studying the function of thiamine in the body it has been found that it is necessary in carrying carbohydrate metabolism through an essential step. With a deficiency of thiamine a particular acid (pyruvic) accumulates in the tissues and this accumulation is apparently responsible for many clinical symptoms. A deficiency in thiamine lowers efficiency in physical⁵³⁵ and mental† work and in morale. All but one of these experiments were done with adults as subjects. Confirmation of these results with children will be awaited eagerly.

This vitamin also has some contribution in promoting growth. Experimentation with animals and demonstration with infants and older children have shown the importance of this vitamin in promoting growth.^{714, 848, 974} This vitamin is necessary, also, for maintaining a normal appetite‡ and the normal motility of the digestive tract. Undoubtedly, failure of appetite and a disturbance in digestion resulting from a lack of thiamine are factors contributing to its effect upon growth.

The effect of thiamine on health and growth is of particular importance since many families have diets low in thiamine. It has been stated that the average diet in 1941, even in families with liberal money for food, contained about one-third as much thiamine as in Civil War times.¹⁰⁵⁸ The current emphasis on the return to whole grain cereals and the enriching of white flour and cereals with thiamine should help to alleviate this deficiency.

Riboflavin plays an important role in the internal environment in which the body cells live, where it is involved in the life processes of active cells. Riboflavin is, therefore, essential to growth and to normal nutrition at all ages. Deficiencies in riboflavin in children have been noted. A study⁹³⁵ of Alabama children, four months to fourteen years of age, who had been living on diets deficient in riboflavin demonstrated that they were usually underweight and underdeveloped. Many were apathetic, indifferent and were making poor progress in school. Frequently they complained of a sore mouth and itching and burning of their eyes. These symptoms waxed and waned with the season and the changes in the quality

* Other factors in the B complex will not be included in this discussion since their roles in human nutrition have not been established definitely.

† See Harrell and Williams, et al., Studies reported on pp. 144, 145.

‡ Schultz and Knott⁸⁶⁸ found that the appetites of children between four and eleven years were improved and food consumption was increased when thiamine, in the form of wheat germ or crystalline thiamine, was added to the diet.

of the diet. Increased exercise and infection precipitated borderline cases. Upon treatment with riboflavin the symptoms disappeared.

Some of the results of a diet poor in riboflavin for any considerable length of time, as given by Sherman,⁸⁸⁰ are digestive disturbances, nervous depression, general weakness and deterioration of muscle tone, poor condition of eyes and skin, likely increased incidence of infectious disease, diminished vitality, shortened life, serious curtailment of the prime of life and too early development of the physical manifestations of old age. The opposite positive effects follow with optimum intake. This "period of prime" has been pointed out to be important both to the individual and to the community because it means a longer life with a smaller percentage of years of dependence.

Niacin, like riboflavin, is involved in the life processes of the cells. It prevents pellagra,* with its characteristic skin lesions and digestive or nervous or psychotic disturbances, provided all other essentials are included in the diet. The deficiencies found in a pellagrin's diet are generally multiple. Children, who have pellagra,⁹³⁶ are usually underweight and underdeveloped. They appear to be undernourished, are irritable, easily frightened, "fretful," listless, tired, apprehensive. Those who are in school make poor progress, and have difficulty in concentrating. They do not have the normal interests of children. They are too tired to play but cannot rest.

Folic acid has been found to play a necessary part in the body's blood-forming activities. It is effective in the treatment of certain types of anemia.

Vitamin C, or ascorbic acid, is essential to the health of intercellular material which acts as a cementing substance in holding the cells of a tissue in their precise positions. Many of the effects of insufficient vitamin C in the body can be traced to this function, such as fragile bones, poor development of the teeth, muscular weakness and anemia. The disease, scurvy, is the result of a severe deficiency. While scurvy occurs with relative infrequency, children who habitually take too little vitamin C may show a loss of energy and fleeting pains in the joints and limbs usually mistaken for rheumatism. Hess⁴⁶² repeatedly pointed out that children may be irritable, lacking in stamina and more or less retarded in growth due to a lack of vitamin C, even though they show no distinct scurvy symptoms. Vitamin C also plays a part in the body's mechanism for combating bacteria and bacterial toxins.

Functions of Proteins. Proteins make up a part of all body cells and, therefore, are necessary for growth. Through digestion

* For a discussion of pellagra, see Duncan, G. G.²⁹⁰

they are broken down into amino acids which are used by the body in building its tissues: bone, muscle, nerves, skin, blood, etc. Eight or ten of these amino acids, as stated before, cannot be manufactured in the body and so must be supplied in the diet.⁸⁴⁶ Deficiencies in particular amino acids may lead to specific types of injury. For example, when arginine is deficient there is a decrease in the number of sperm and their motility.⁴⁷⁷ Lysine deficiency in the female appears to interfere with the menstrual cycle.⁸ All proteins do not contain all of these essential amino acids, so the kind of protein must be considered as well as the amount. Animal proteins are richer sources of these amino acids than vegetable proteins. Proteins are necessary for the manufacture of enzymes used in digestion. They are also a source of the amino acids which are a part of the hormones of the endocrine glands such as thyroxin of the thyroid gland, epinephrine of the adrenals and insulin of the pancreas. Proteins also function as antibodies to resist infection. A depletion of protein lowers the body's resistance to infection.¹⁸¹ In addition to fulfilling these structural and functional needs, proteins may be used as a source of energy. However, this is an expensive source of energy and, in childhood, the protein should not be diverted from its function of tissue building to satisfy energy needs.

Function of Carbohydrates and Fats. Carbohydrates and fats, as the chief sources of energy, are necessary for growth, in that they furnish energy for the growth process. Animal experimentation has shown that retardation in growth can be due to inadequate energy-yielding substances. If all needs except those of energy are met, the skeleton will grow in height but will be narrower, fat disappears and muscles will become more or less depleted.⁸⁸⁰

The body tries to compensate when there is a shortage of food energy, as happens in famine or wartime. Stuart⁹⁶⁷ reports that one of the common symptoms of the underfed children in France in 1942 to 1943 was a pronounced lethargy, which doubtless meant (in addition to other factors, perhaps) an attempt to bring the energy output as near as possible to the level of intake.

Fats and carbohydrates also furnish the body with adipose tissue which serves as a protection against the loss of heat, acts as a cushion to the abdominal organs, and is a potential source of body energy. Fat-like substances are essential parts of body cells, as has been mentioned before, and these substances are found in relatively large amounts in nerve tissue. Certain fats perform another important function in that they are carriers of vitamins A and D. Glucose, a digestive product of carbohydrates, is a constant constituent of the blood. Galactose, another sugar, is apparently used in the construction of nerve cells.

Role of Water. The human being lives in water, even though it is not an aquatic species.

... separating us from the air which surrounds us is a layer of horny scales, the scurf of the skin. Inside this lifeless covering are the parts of us that are alive. Whenever we look inside the body we find fluid (blood or lymph) bathing the masses and meshes of cells which constitute the living tissues. Indeed, we reside in a sort of fluid matrix, composed mainly of salty water.¹⁸³

Water is a part of every tissue in the body, even of the proverbially dry bone.* Mature bone contains nearly half its weight in water. About 75 per cent of muscle and at least 80 per cent of the gray matter of the brain are water. No cell can carry on its activities when it is absolutely dry and most cells must be constantly bathed with fluid in order to do their work. These cells have their food brought to them and their waste products removed by the "water route," the blood. Many of these waste products are eliminated through the urine. The digestive juices, saliva in the mouth, the gastric and intestinal juices require large quantities of daily water.† Water serves as a regulator of body temperature. Evaporation from the skin, perspiration, provides one of the most important methods of removing surplus heat from the body. Water protects internal organs. The central nervous system is bathed by the cerebrospinal fluid. Fluid also lubricates joints, thereby making movements at joints easy. Water is, therefore, tremendously important in life. Rubner⁸⁵¹ estimated that a man could lose most of his stores of glycogen and of fat and even half of his protein without serious danger to life, but a loss of 10 per cent of body water is a serious matter and a loss of 20 per cent is scarcely to be endured.

In childhood, the need for water is even more urgent than in maturity. In addition to the demands for water, there is another fact that needs to be remembered. In childhood, the mechanism which the body has for maintaining constant conditions in the fluids of the body is developing and has not reached perfection.¹⁸⁴ Water is easily lost from the body, and precautions should be taken to insure an adequate and regular intake.

Optimal Nutrition. The adjective *optimal*, or the noun *optimum* is defined by Sherman⁸⁸⁰ as meaning the best. At present, the optimal diet is, in most cases, an ideal or an ultimate goal which cannot be defined in precise quantitative terms but towards which

* In children, the percentage of water in tissues is higher than in adulthood.

† The adult secretes daily about three quarts of gastric juice, two and one-quarter pints of saliva, one and one-half pints of bile, one and one-quarter pints of pancreatic juice and one-half pint of intestinal juice. (Source: Cleveland Health Museum.)

progress is being made. Optimal intakes may have upper as well as lower boundaries as has been suggested in the case of vitamin D. Just as height or weight beyond a certain level becomes a liability rather than an asset, so an indiscriminate amount of food substances may hinder rather than further good nutrition. Our present knowledge can be used to improve the health and growth of children. It is evident from observations, measurements and various tests that some children more nearly achieve a state of health and growth in accordance with their potentialities than do others. The increase in the standard for height and weight in the last few decades and the improvement of growth after enriching the diet are indications of progress. Just as health means more than an absence of disease, so the state of good nutrition means more than an absence of a gross deficiency. It is not enough to prevent a child from having rickets, scurvy or tetany. It is important that his body be ready to do what the will commands and do it without undue conscious effort. That means calcium-rich rather than calcium-poor bones and teeth, tissues that are well supplied with surpluses of the vitamins, and a bountiful supply of red blood cells well stocked with hemoglobin. There are too many children today who live in that twilight zone between the absence of actual disease and the level of buoyant health which liberates the body and makes enjoyment of life possible, who are victims of a "hidden hunger" almost as devastating as "stomach hunger." Example after example of "precritical" malnutrition can be found in the literature.^{780, 1056} Such subclinical handicaps "cripple confidence, initiative and efficiency, impair daily achievement and satisfaction, shatter ambition and cast a gray veil of uneasiness over what should be the very joy of life."¹⁰¹²

MEETING THE NUTRITIONAL NEEDS OF CHILDREN

Nutritional Allowances. Much research has been done on the amounts of nutrients required for children throughout the growth period. To arrive at reliable standards, based on well controlled experiments on a sufficiently large number of children, is an arduous task which has not as yet been completed. The standards which are used today are tentative, subject to modification, but can be used to guide in the feeding of children provided they are used discreetly. Here again, individual differences in children complicate the situation. Nutritional standards should not be used in a Procrustean fashion, any more than should standards of height and weight. In May, 1941, the Committee on Foods and Nutrition of the National Research Council formulated recommended daily

allowances for specific nutrients and revised them in 1945 (Table I). The experimental evidence of human nutritional needs and the careful judgment of recognized authorities in nutrition combined to produce these figures.

In this table, in listing the amount of nutrients to be allowed at the various ages, it will be noticed that phosphorus and iodine are not included. It has been found that satisfactory amounts of phosphorus will be included in the diet when the needs for protein and calcium are met. Meeting the need for iodine is not a practical nutritional problem except in certain geographic areas where iodine is lacking in the water and soil. By using a diet of natural foods not only will these allowances be provided but such minerals and vitamins, the requirements for which are less well known, will also be included.

Foods to Meet These Allowances. Nutrients are not taken as such but are consumed in foods which are mixtures of protein, carbohydrate, fat, vitamins and salts, together with more or less residue which has no food value. All foods are not equally good sources of these nutrients. Some foods, sugar for example, provide only one nutrient. On the other hand, a small orange contains as many calories as a tablespoonful of sugar but, in addition, contains vitamins and minerals. In terms of its contribution to the growth needs of children, an orange is more economical than a tablespoonful of sugar. Some foods owe their right to priority at the table to the fact that they are particularly rich sources of some nutrient, and, unless they are included in the diet, the amount of that particular nutrient is likely to be inadequate. Such is the role of citrus fruits and tomato as invaluable sources of vitamin C. Milk is outstanding in its contributions to the diet and holds its place in a child's dietary because of its diversity of constituents as well as richness in one particular element. Milk contributes protein of high quality, calcium, phosphorus, some iron, vitamin A, thiamine, and riboflavin. Its calcium value is of particular importance. There is approximately as much calcium in a cup of milk as in 5 cups of orange juice, 133 tablespoonfuls of butter or about 3 cups of carrots.

Because of the particular value of certain foods, it is possible to formulate a basic or fundamental diet, containing foods which should be included daily, whether the individual be a preschool child, a child going to school, an adolescent or an adult. Differences at these various ages will be differences in amount and perhaps in methods of preparation. Foods which are good for the younger ages are all good for adults. Unfortunately, food eaten by adults is not always good for children.

TABLE I.* RECOMMENDED DIETARY ALLOWANCES, REVISED 1945 (AMOUNTS PER DAY)

	Calories	Protein grams	Calcium grams	Iron mg.	Vitamin A I.U. ³	Thiamine mg. ³	Riboflavin mg. ³	Niacin (Nicotinic acid) mg. ³	Ascorbic acid mg.	Vitamin D I.U.
Man (154 lb., 70 kg.)										
Sedentary.....	2500	70	0.8	12 ⁴	5000	1.2	1.6	12	75	5
Moderately active.....	3000	70	0.8	12 ⁴	5000	1.5	2.0	15	75	5
Very active.....	4500	70	0.8	12 ⁴	5000	2.0	2.6	20	75	5
Woman (123 lb., 56 kg.)										
Sedentary.....	2100	60	0.8	12	5000	1.1	1.5	11	70	5
Moderately active.....	2500	60	0.8	12	5000	1.2	1.6	12	70	5
Very active.....	3000	60	0.8	12	5000	1.5	2.0	15	70	5
Pregnancy (latter half).....	2500*	85	1.5	15	6000	1.8	2.5	18	100	400 to 800
Lactation.....	3000	100	2.0	15	8000	2.0	3.0	20	150	400 to 800
Children up to 12 years: ⁷										
Under 1 year ⁸	100/2.2 lb. (1 kg.)	3.5/2.2 lb. (1 kg.)	1.0	6	1500	0.4	0.6	4	30	400 to 800
1-3 years (29 lb., 13 kg.).....	1200	40	1.0	7	2000	0.6	0.9	6	35	400
4-6 years (42 lb., 19 kg.).....	1600	50	1.0	8	2500	0.8	1.2	8	50	400
7-9 years (55 lb., 25 kg.).....	2000	60	1.0	10	3500	1.0	1.5	10	60	400
10-12 years (75 lb., 34 kg.).....	2500	70	1.2	12	4500	1.2	1.8	12	75	400
Children over 12 years: ⁷										
Girls, 13-15 years (108 lb., 49 kg.).....	2600	80	1.3	15	5000	1.3	2.0	13	80	400
16-20 years (119 lb., 54 kg.).....	2400	75	1.0	15	5000	1.2	1.8	12	80	400
Boys, 13-15 years (103 lb., 47 kg.).....	3200	85	1.4	15	5000	1.5	2.5	15	90	400
16-20 years (141 lb., 64 kg.).....	3800	100	1.4	15	5000	1.8	2.5	18	100	400

1. Tentative goal toward which to aim in planning practical diets; can be met by a good diet with a variety of natural foods. Such a diet will provide other minerals and vitamins, whose requirements are less well known.

2. The allowance depends on the relative amounts of vitamin A and carotene. The allowances of the table are based on the premise that approximately two-thirds of the vitamin A value of the average diet in this country is contributed by carotene and that carotene has half or less than half the value of vitamin A.

3. Other members of the B complex also are required, though no values can be given. Foods supplying adequate thiamine, riboflavin, and niacin will tend to supply sufficient of the remaining B vitamins.

4. There is evidence that the male adult needs little or no iron. The allowance will be provided if the diet is satisfactory in other respects.

* Recommended Dietary Allowances, Revised 1945, Food and Nutrition Board, National Research Council, Circular Series No. 122, Washington, D.C., 1945.

5. For persons who have no opportunity for exposure to clear sunshine and for elderly persons, the ingestion of small amounts of vitamin D may be desirable. Other adults probably have little need for vitamin D.

6. During the latter part of pregnancy the allowance should increase approximately 20 per cent over the preceding level. The value of 2500 calories represents the allowance for pregnant, sedentary women.

7. Allowances for children are based on the needs for the middle year in each group (2, 5, 8, etc.) and are for moderate activity and for average weight at the middle year of the age group.

8. Needs of infants increase from month to month with size and activity. The amounts given are for approximately six to eight months. The dietary requirements for some of the nutrients such as protein and calcium are less if derived largely from human milk.

The following foods should be taken daily:

- Milk
- Egg
- Green or yellow vegetable
- Raw leafy vegetable
- Whole grain cereal
- Citrus fruit or tomato
- Some source of vitamin D

The value of milk has already been given. Eggs are important because they furnish proteins of excellent quality. Rose⁸⁴⁴ assures us that next to milk, eggs are the most important protein-bearing food in the diet of the growing child. They are also a good source of iron, riboflavin, thiamine, vitamin A, and are one of the relatively few foods that contain some vitamin D. However, the amount of vitamin D is small, for it takes 12 egg yolks (all the vitamin D is found in the yolk) to give the same amount found in 1 teaspoonful of codliver oil. The green or yellow vegetable furnishes minerals, with special emphasis on iron, vitamins and roughage which aids in intestinal elimination. The whole grain cereals give additional protein and calories, are good sources of minerals and excellent sources of thiamine. Whole grain cereals are better than refined or milled cereals because much of the mineral value of the grain is lost in the milling process; 62 per cent calcium, 76 per cent phosphorus and 70 to 80 per cent iron are reported to be lost.⁸⁸¹ Enriched white bread and flour introduced in 1941 has thiamine, riboflavin, niacin, and iron added to it in sufficient quantity to make up for the loss of those elements in the milling process. This enriched bread may be substituted in part for the whole grain breads; however, it should not replace whole wheat products entirely, for there may be additional unknown nutritional factors in whole wheat which are necessary for human nutrition.

The citrus fruit or tomato is included to insure sufficient vitamin C. Citrus fruits include oranges, grapefruit and lemons. If tomato juice is used, a larger amount is required. At least twice as much tomato juice is needed to give the vitamin C value equivalent to orange juice.

After these foods have been included, others which are added will depend upon the family pocket book, family background and its habits.

One of the first additions to these foods will be meat. As well as being a good source of protein, meat has the advantage of good flavor. It adds zest to a meal. Of all meats the glandular organs have the highest nutritional value. Thus liver and kidney are

especially good meats for children. Serving one of these weekly is an excellent practice.

Nature evidently expected man to obtain his vitamin D from the action of sunshine on the skin, for there are relatively few foods that contain vitamin D. In some sections of the country it is possible to obtain enough ultraviolet light from the sun, but in many parts of the country during the winter months the amount of available ultraviolet light is inadequate. In the north, the altitude of the sun in the winter is a factor in limiting the ultraviolet light. The smoke and dust of city communities reduce it even more. Clothing further prevents the rays which are available from reaching the body. It is, therefore, necessary to supply the child with vitamin D through cod liver oil, some of the many concentrates (oleum percomorphum, haliver oil, etc.), vitamin D milks, or by the use of sun lamps. The pediatrician or family physician should determine how much vitamin D the individual child will need and in what form it shall be given.

FOOD HABITS—BY WHICH FOOD REQUIREMENTS ARE MET

A child's food habits reflect his nutritional needs, the degree of maturity of his body, his personal satisfactions and dissatisfactions and the impact of the economic and social world upon him. The acquisition of good food habits is to be considered one phase of growing up. Good food habits can be said to include: (1) a good appetite to insure eating enough food, (2) the experience of eating and enjoying the foods which furnish a well-balanced diet, and (3) an interest in and willingness to eat a widening variety of foods so that the child is guaranteed an adequate diet, is adding to his store of knowledge and is establishing a flexibility toward food. Flexibility, here as elsewhere, is a mark of maturity. Since appetite for food in general and for specific foods is the foundation on which food habits are built, let us begin with appetite and hunger, that other sensation which is closely allied with appetite.

Relationship of Hunger and Appetite. Hunger and appetite are distinct physiological manifestations but they cooperate or replace one another in their service to the body. Hunger is characterized by a dull ache or gnawing pain arising from strong contractions of the empty stomach. It is not associated with desire for any particular food. Cannon says, "It does not invite men to eat, it drives them to do so."¹⁸³ Appetite, on the other hand, is a desire for food, related to previous sensations of taste and smell.

A child may experience hunger without appetite. This is noticed in children who begin a meal eagerly but lose interest after the

first few bites. These children have no appetite to carry them on after the pangs of hunger have been satisfied. On the other hand, appetite may be present without hunger. Children, like adults, will eat dessert after a large meal, not because they are still hungry, but because they desire it.

Hunger and appetite can be taken into account when planning the sequence of foods at a meal. Since hunger supplies a strong drive and is present at the beginning of the meal, new or unpopular foods may be given at that time with success, since the desire to appease the hunger sensation will counteract the child's mind set against the new or unpopular food. The association of a particular food with the relief of hunger pangs will establish a basis for future enjoyment of that food. Hunger can, therefore, be an aid in extending a child's appetite for food.

Conditions Affecting Hunger and Appetite. If hunger is to reinforce appetite, conditions must be set to stimulate hunger contractions and the time of eating must coincide with these sensations. Hunger sensations occur only when the stomach is empty. Therefore, it is important that enough time elapse between eating to allow for emptying of the stomach. Too frequent meals or eating between meals may interfere. Hunger contractions are rhythmical. Hence regularity of meals which conforms to the rhythmical pattern of the motility of the digestive tract is important. Hunger contractions are stimulated by bodily exercise. Here is one of the several contributions of physical activity to the health of the child. Hunger contractions, on the other hand, are inhibited by eating, by the sight of food which produces a flow of gastric juice, by fatigue, by strong emotions, by pressure on the abdomen, by smoking and by fever. Normally, everyday hunger sensations are stopped by eating and by the sight of food. This is a natural sequence of events. But to have hunger sensations inhibited by fatigue, emotions or fever is not normal. Such inhibiting factors should be reduced in frequency or eliminated by careful management.

Appetite is stimulated by the sight, taste and smell of palatable food, by the memory of pleasant experiences with food and by pleasant emotions. The presence of hunger contractions also serves as a stimulant to appetite. Appetite is inhibited, however, by all the factors inhibiting hunger and the absence or reverse of the conditions conducive to good appetite. A happy mealtime, therefore, is extremely important in stimulating appetite.

Appetite Can Be a Gauge of the Amount of Food to Eat. Appetite can determine the amount of food children need. This device is adequate in serving as a gauge of the amount of food

necessary for health and growth of a child when appetite is normal and healthy, and not diminished or perverted by physiological or psychological factors. When appetite fails to operate at an optimal level, the body lacks sufficient materials for efficient performance and growth. At the other extreme, occasionally, the desire for food may go beyond physiological needs when the satisfaction from eating is substituted for another satisfaction lacking in the child's life.^{13, 151, 485, 689} Occasionally, a child overeats in compensation for lack of affection, insecurity, lack of status in his work, etc. This condition occurs infrequently enough that it should not be confused with the ravenous appetite of the pubescent child.

Since children generally can decide for themselves the amount of food they need, they may have a share in determining how much food will be served to them. Often adults overestimate the capacity of a child for food. It is well to remember that appetites vary from meal to meal, and from day to day, and it is a wise parent who recognizes and accepts these variations.

Appetite an Unreliable Guide in Food Selection. Davis^{247, 248} demonstrated that a group of infants, with no former experience with food other than milk, under controlled conditions in an institution, and given a wide variety of simple, *natural* foods, could select their own food in such a way that satisfactory nutrition, judged by immediate results, was maintained. Unfortunately, the conditions in that experiment could not be duplicated in a home. If a child has a physiological mechanism which can guide him in food selections to meet his needs (and the existence of such a mechanism in human beings has not yet been demonstrated), he is so conditioned by his environment at an early age that any such natural guide to food selection is prevented from functioning. Tastes built up by the culture in which he lives are substituted for it. It is, therefore, important that children be helped to develop good habits and attitudes toward food.

Acquiring Food Habits: Influencing Factors. Every child at birth has the basis for establishing good eating habits, namely, hunger contractions. The gratification from taking food at the time these sensations occur is the beginning of establishing good eating habits.^{821, 884} Conversely, frustration in feeding experiences inhibit their development. With this experience as a beginning, the child changes his eating behavior with increasing maturation of his body and mind.

From the early weeks of life *taste discrimination* is present and provides a basis for the development of selective appetite or the likes and dislikes of foods. In the infant, taste buds are distributed

abundantly in the mouth, on the tongue, cheeks and in the throat. With increase in age, until probably around twelve years of age, they decrease in number and distribution.⁶⁰⁷ Thus, with the same food, the taste sensations of young children may differ from those of older children and adults. Also, there are individual differences in the intensity of taste sensation.¹⁰⁶⁴ The sensitivity varies in the same individual from time to time and from one individual to another. Renner⁸²⁷ says that the keen-sensed individuals are generally the quickest eaters. These differences with age and between individuals of the same age may be responsible in part for individual children's differences in accepting foods.*

Since sight, smell and the feeling of the texture of food in the mouth add to the sense of taste and affect children's reactions to foods, the quality of the food and the combinations of foods will add or detract from the pleasure of the meal. Variety in color and consistency, and pleasing combination of flavors will enhance the attractiveness of meals. The preparation of the foods is also important.

The acquisition of *motor skills* is reflected in the child's manipulation of his food. By the time a child enters school, he has achieved much in this area. (See Chapter 8, p. 321.) It is important that the form in which the food is served should be compatible with his skill to handle it.

The *social development* of the child also contributes to his food habits. In the school years, as he is breaking away from dependence upon his family, and is leaning toward his friends, he drops some of the table manners which he has learned from his family. This is the period of messy table behavior. Parents need not become distressed, for this is a passing phase and a part of growing up. If parental pressure is applied at this time, it may result only in influencing unfavorably the child's attitude toward food.

In adolescence the pressure of the social group is strong. Conformity with group practices is important. So it is in the area of eating. The drug-store habit and the attitude of acceptance or rejection of specific foods may interfere with the practice of good food habits which have been established earlier. A wise parent can help direct "what is being done." An ingenious parent can help make desirable habits popular. Also, during adolescence the heavy schedules of the boys and girls often produce fatigue, with its depressing effect upon appetite, and the irregular or hurried meals because "there just is not time to eat."

* See Davis²⁴⁷ for a discussion of individual differences in the pattern of taste. Eppright⁸⁰² gives suggestions for applying the knowledge of taste sensations to feeding children.

Emotions play a role in food habits. We have mentioned the child who overeats to compensate for something which is missing in his life. Children who are happy and secure are more likely to eat well than children who are disturbed by worry, anxiety or discontent.

A *healthy child*, all other factors being equal, will eat better than will the child who is not well. However, when he has a cold, or a sore throat, or a toothache, or a greater incapacitating illness, he may not be interested in food. Such an illness, as we have said before, may be the beginning of a chronically poor appetite if the adults fail to appreciate the child's temporary disinterest in food and either urge him to eat or express concern about him. The lack of desire to eat during illness should be respected since it has a real physiological basis. Children with chronic illnesses and foci of infection, such as diseased tonsils and carious teeth, cannot be expected to have keen appetites.

A child's *physical habits* will strengthen or impair his appetite and thus his interest in and attitude toward food. Regularity and the spacing of meals, satisfactory elimination, plenty of exercise, fresh air and sunshine, and enough sleep and rest to permit recuperation from the activities and stresses and strains of the day are important. There is much truth in the saying "too tired to eat." The tired child, whether he is tired from vigorous exercise or from one of the other many causes of fatigue, is not ready for his meal.

A *balanced diet* is also important. The fats, such as cream, butter, rich desserts and fried foods, should be limited, since fats retard digestion in the stomach. Sweets need to be watched.* As stated previously, thiamine has a definite effect upon appetite.

Food Habits Are Learned at Home. In his early years the child spends most of his time at home. It is at home that he will acquire his food habits. Parents, in planning for their children, can prepare for them by taking stock of their own food patterns and setting the family food habits in readiness for the children. This is important, for even before the child has moved from infancy into early childhood, he begins to acquire the tastes of his family for the particular foods and food combinations they prefer. He becomes acquainted with sweet foods, with salty foods. If the family likes white bread only, he learns to eat white bread only, both because it is served and because he learns to eat by imitating others. If the family has wide food interests he will have ample opportunity to

* Dr. Macy⁶⁶⁴ observed that children, whose diets were poor, had an abnormal craving for sweets. As the diets became well balanced to meet bodily needs, the healthy child voluntarily reduced his sugar consumption.

learn about many foods. If, however, the family list of foods is limited by food prejudices and preferences, he will be deprived of extending his knowledge of foods beyond a very narrow range. It is through their early and repeated experiences that children develop interest in a variety of foods and an attitude of adventurousness in trying new kinds. Thus, children are conditioned early in their food habits, some practising wise food selection, some practising poor selection. These childhood experiences with food are reflected later in the selection of food in the school years and in adolescence. Studies of food selection in school cafeterias^{53a} and in a study of adolescent diets by Bayer⁶⁵ indicate that many school children and adolescents have inadequate diets and point to the need for better education in nutrition and opportunities for the practice of that knowledge.

The atmosphere at mealtime varies in families. In some, it is a time through which to hurry; in others it is a social experience in which enjoyment of good food is joined with good fellowship. Meals should be leisurely and relaxing. They are not a time for scolding, nagging or discussing the day's difficulties and the family problems.

The parents' attitudes toward their children's eating are extremely important. According to Baldwin's⁵⁰ study, good appetite was found in homes in which strict disciplinary methods were combined with approval of the child. The type of strictness found in these homes seemed to be a strictness about a few essentials of behavior but not a strictness which completely determined the child's activities. This freer kind of strictness seemed to be psychologically healthful. Strict disciplinary methods were also found in the good table behavior homes but the strictness in these homes seemed to stem from an attempt of the parents to force adult standards upon the child. This excessive restraint seemed to deprive the child of free and spontaneous behavior. Lack of "finicalness" or a wide acceptance of foods, he reported, was generally associated with abundance of affection and attention. One cannot make children like foods.

In a study⁴⁵⁸ of food habits of adolescents from different cultural backgrounds, it was found that good food habits are not the result of one single type of family pattern, strict, lenient or intermediary, but depend upon "the parent's adaptability to the needs of a changing younger generation and to a cultural pattern which has no code as yet, but is itself in transition."⁴⁵⁸ Thus parents must grow with their children and adapt their guidance according to the stage of development of the child plus the demands of society.

Unwittingly many parents in this country are not always assisting children to learn to enjoy desirable foods. Mead⁶⁷⁸ discusses the dilemma of the child, in what she calls the average home in the United States, where the child learns, through his parents' attitudes and behavior that the "right" foods tend to be un-delicious and the "wrong" foods tend to be delightful. They learn this through rewards and punishment meted out at mealtimes. The oft heard remarks "Drink your milk and then you can have your dessert"* and "If you don't eat your vegetables you can't have that candy after dinner" bear evidence to this point. In such instances dessert becomes a bribe and the withdrawal of candy becomes a punishment. A child is virtuous when eating the "right" foods, but he is not expected to enjoy them. Eating the "right" foods and enjoying oneself are not synonymous. Later, when children from such homes have a chance to choose foods for themselves, they have to decide between doing right or enjoying themselves. Since eating the "right" foods has become associated with parental domination, the adolescent may eat only that which he likes as a bold gesture to announce that he has grown up. Thus children with such eating experiences miss the opportunity of laying a foundation of pleasurable experiences with food as the basis for later self-selection.

In order to understand children's food habits, it is also necessary to know the cultural background of the family. The foods eaten and the attitudes toward food vary from one culture to another.⁷³²

Thus good food habits† are learned in an environment which recognizes and permits changing behavior with advancing maturity, which promotes good mental and physical health, provides pleasant experiences with good food, and furnishes an opportunity for learning to make wise food selection. It is a cooperative venture between child and parents in a specific environment.

OTHER FACTORS RELATED TO NUTRITION

To provide children with the food they need for health and growth is not enough. The food must be broken down by digestion into substances which the body can absorb; those substances, such as glucose, fatty acids, amino acids, minerals and vitamins, must pass through the walls of the digestive tract into the blood stream, be carried to the various parts of the body, transmitted to the body cells where they are assimilated and converted into body tissues. The efficiency with which the body performs these pro-

* We do not imply that all desserts are "wrong" foods.

† Further discussion and references on Food Habits.^{721, 732}

cesses is not perfect and that efficiency varies from time to time within the individual and varies from individual to individual.*

Everyone knows of children who, in spite of consuming large quantities of food, remain thin, while other children gain weight on a much smaller intake. It is, therefore, valuable to know some of the factors which influence the assimilation and utilization of food. Balance of nutrients is essential. Overemphasis of one element may interfere with another, such as in the case of calcium and phosphorus. Too much of one of these prevents the proper use of the other. Too much fat interferes with calcium absorption. Many such examples can be cited.† Because of this need for balance among nutrients, it is unwise to place too much emphasis on one particular element. The habit of using natural foods and a variety of foods rather than using concentrates and pills as a source of nutrients minimizes this danger.

Further, the conditions under which the food is eaten influence the use the body can make of it. A leisurely, pleasant mealtime permits proper mastication, which prepares the food for digestion by breaking it up and mixing it with saliva and also makes the normal flow of the digestive juices possible. In contrast, a hurried meal or one fraught with emotional stress and strain is a poor prelude to digestion. Finally, other physical habits—elimination, sleep and activity—contribute to the processes of digestion and assimilation.

Elimination. The elimination of waste products is necessary for the well-being of the whole body. These waste products consist of substances which result from metabolic processes and substances in the digestive tract which have not been absorbed. The organs of elimination are the lungs, the skin, the kidneys and intestines. The lungs excrete carbon dioxide and water vapor; the skin, water and some salts; the kidneys, water, products of protein metabolism and salts; and the intestines eliminate undigested materials, bacteria of the digestive tract, wastes of the digestive process, some salts that have been used by the body and are ready to be removed, and water.

The *amount of urine* excreted varies between individuals and from day to day in the same individual, depending upon the amount of water taken, and environmental conditions which increase or reduce the loss of water through the skin by perspira-

* This variability is illustrated by a longtime well-controlled experiment by Hunscher, et al.⁴⁹¹ with children between the ages of four and nine years, on the utilization of calcium. It was found that the retention of calcium varied between 27.4 per cent and 48.5 per cent of the amount ingested.

† See any current nutrition text.

tion. The *frequency of urination* also varies greatly, depending upon the amount of water taken and physiological and psychological factors. Boys tend to urinate more frequently than girls. In cold weather children tend to urinate more often than in warm weather. Emotional stress, such as the excitement of the first day at school, or of an approaching contest, will increase the frequency. The frequency of urination is also increased in conditions which cause irritation to the urinary tract, such as concentrated urine or bladder infections. Because of the variability in the need to urinate among children and the variability from day to day in the same child, adults should make it possible for the child to go to the toilet whenever he designates a need.

In fecal elimination, the *amount of feces* depends, to a large extent, upon the diet and water intake. A diet with adequate roughage from a liberal use of fruits and vegetables increases the amount of feces. Small feces are the end product of a diet of foods which leave little undigested residue.

The *normal consistency* approximates that of an over-ripe banana. If the materials in the intestine move too rapidly there is diminished opportunity for water to be absorbed and the frequent, loose bowel movements of diarrhea result. But if the materials move too slowly, excessive water is absorbed through the walls of the intestine, and the hard, infrequent bowel movements of constipation are the consequence. The speed of the peristaltic movements of the digestive tract are influenced by diet and by emotion. Too soft stools, therefore, may be the result of too much roughage, or food which has been too irritating to the lining of the digestive tract such as berries with too many seeds. Soft stools may also be caused by emotional disturbances. On the other hand, too hard stools may be due to inadequate water, too little bulk or to nervous tension.

Fecal elimination generally occurs once a day at a regular time. There is no hard and fast rule, however. Some children have more frequent bowel movements and some have a rhythm of every other day. Regularity in a child's pattern of elimination is more important than the closeness with which his pattern conforms to that of others. Having a regular time daily for the bowel movement, preferably after a meal (since peristalsis is stimulated by eating), and allowing ample time so that the child will not be hurried, will aid in establishing and maintaining good elimination. An excellent time for bowel elimination for the school child is in the morning either on arising or after breakfast. At this time the child is more relaxed after a good night's sleep. There is also less chance of interference in this routine thus timed than during

school hours. Children should be encouraged to go to the toilet when the urge for defecation arises. Ignoring this urge may lead to constipation.

Rest and Activity. Both activity and rest are important because of their relation to nutrition and growth. Muscular activity is important in that it improves circulation and respiration, stimulates appetite, aids digestion, improves muscle tone, thereby fostering good posture and normal elimination, and increases endurance, strength and accuracy. The amount and kind of activity for the child should be considered in respect to his constitutional strengths and weaknesses, his general physical health, and his stage of development. In addition to large muscle activities, there are the finer motor activities and muscle tensions accompanying mental work.

Activity cannot be continued indefinitely because muscles become tired, so periods of inactivity are necessary to restore them. These periods of rest should occur frequently for children. Rest may not necessarily mean complete inactivity. It may be a change from one type of activity to another so that one part of the body rests while another works, or the tempo of activity may be reduced. For example, a period of folk dancing may be followed by a period of reading or, following a vigorous dance, rhythms inducing relaxation may be introduced. The most satisfactory and prompt recuperation, however, takes place when the muscles are both inactive and relaxed and when there is both mental and physical repose. In the early school years, children can learn the feel of muscles when they are relaxed and how to put them in such a state.

The balance of rest and activity differs for different children. Some require more rest than others, as, for example, the child who has been ill. His muscles have lost some of their tone and are, therefore, more easily fatigued. Such a child needs more frequent and longer rest periods until he has attained his normal vigor once more. Children who are malnourished need additional rest. Some children require more mental and emotional rest and greater physical activity. For children who have been sitting for hours in a classroom, outdoor play is more restful than sitting in a corner reading a book. To plan a child's regimen so as to allow for a balance of activity and rest, it is necessary to know the child, his health history and growth, and his home and school environments with the demands they place upon him.

Sleep. Sleep is the most complete and satisfactory of all forms of rest. It rests not only the voluntary muscles and the eyes but there is also a depression of other tissue and organ activities. The circulation and respiration are slowed. That less energy is expended

is indicated by a lower metabolic rate.* More energy, therefore, is available for growth.

Children and adults do not sleep like a "log"; there is some bodily movement which varies in amount from hour to hour, from night to night, and from child to child, depending upon a number of factors. There are many studies† of motility in sleep. At all ages, the most quiet sleep occurs early in the night and there tends to be a gradual increase in motility as the night progresses. (See Fig. 22 in Chap. 3.) For children between six and eighteen years of age, Renshaw, Miller and Marquis⁷⁸¹ found that the children were most active directly upon retiring. Then followed a gradual decrease in activity so that a minimum was reached somewhere between thirty minutes to one and one-half hours after retiring. The average child had 8.7 "active" minutes per hour.‡

Giddings,³⁸⁶ using a new method by which he could determine the actual amount of time spent in movement, reports that the nine-to fourteen-year-olds he studied spent less than five minutes in motion during the nine hours in bed. Within this general pattern for all children, each child has his own characteristic pattern of hourly distribution of motility. This individual pattern is very stable in children living under normal routine, free from illness, emotional disturbances, etc.

A number of external and internal conditions have been found to influence the sleep motility in children. Karger⁵⁷⁰ noted that disturbed sleep followed activity just before retiring, or listening to fairy tales. Putting a child accustomed to sleeping alone in a room with other children increased his activity during sleep. Karger and Giddings³⁸⁸ found that fever did not disturb sleep. Renshaw, Miller and Marquis found that moving pictures led to disturbed sleep in children of six to eighteen years of age. (See Chap. 6 for effects of movies.) Giddings³⁸⁷ found that eating a large amount of food at the night meal, even though it might be considered simple food, increased motility,§ while for the average child baths, hot or cold, had no effect. Emotional states (fear, worry, disappointment or pleasant anticipations) interfere with quiet sleep.³⁸⁴ Kleitman, in his summary of sleep studies, states that there is some disagreement regarding the influence of room temperature on sleep. There is not sufficient evidence to indicate

* For a complete discussion of the physiology of sleep, see Kleitman, N.⁵⁹¹

† See bibliography. 367, 387, 591, 671, 781

‡ Using one minute as a unit, if any movement or activity occurred in any portion of a minute, that minute was counted as active.

§ Laird and Drexel,⁶⁰⁸ in a study of four and one-half to eight-year-old children, found that a light meal of cornflakes and milk decreased sleep motility, while a heavy meal increased it.

any definite relation between sleep characteristics and daily variations in temperature and humidity. Sleep tends to be longer and more quiet in winter^{305, 450} than in summer.

From these studies it is evident that a light meal, quiet, relaxing time before going to bed, freedom from emotional stress or strain or excitement are conducive to quiet rest. The conditions under which a child sleeps are also important. Quiet, freedom from external stimuli, and comfort, such as a comfortable bed and warm but light bed clothes, are important. Most of these conditions are more easily achieved if the child can have a bed of his own and, if possible, a room of his own. Wagner,¹⁰²⁹ in a study of young orphanage children, showed that children who slept alone went to sleep more promptly and slept longer than children who shared their beds with others.

Gesell³⁷⁷ says that the school-aged child (five to ten years) is still in the process of learning to sleep.* He is still having trouble going to sleep, and makes certain demands upon his parents. As he grows in independence, his resistance to going to bed is not so much resistance to sleep but against a parent-imposed task. Bedtime for the younger school-aged children is still a time of close relationship between parent and child. It is a time when the child is responsive and confidential, a good time for questions, answers, discussions and hints. The child's past experiences, all the way back to early infancy, have left their mark upon his sleep habits. Some of the factors contributing to the acquisition of good sleep habits are: regularity of bed hour and regularity in other routines; disregard for the immediate environment and a good attitude toward sleep, that is, one of pleasant and casual acceptance. The attitude of the child is contingent upon the adult's own attitude toward sleep and his behavior toward the child. Undesirable attitudes are fostered by oversolicitude, much talk about sleeplessness, suggested fear of the dark, and punishment at bedtime. Children will resent going to bed when they feel that, by so doing, they are being deprived of something. A child with a full and satisfying life will not feel cheated when sent to bed while other members of the family continue with their evening's activities. During the school years and in adolescence, the continuation of good sleep habits are important and conditions favorable to a regular and early bed hour should be maintained.

The amount of sleep a child needs varies with age and from child to child. The young baby sleeps most of the time. As he grows, his waking hours increase, so that, during the later months

* By sleep he means a complex of four phases: release into sleep, staying asleep, waking, and staying awake.

of infancy and the preschool years, he has a long sleep at night and one nap during the day. By the time he starts to school, his nap has probably dropped out. It may have dropped out spontaneously, or it may have been forced out by attendance at school. Some schools, recognizing the value of a daytime rest, are now providing for it in their schedules.

Recommended hours of sleep for different ages are the result of studies of the hours of sleep of a large number of children. Typical of these are the Minnesota³²⁰ figures for those children between six months and eight years, and the Terman and Hocking figures for children between six and nineteen years of age. A suitable routine for the average child seems to be eleven and one-half hours in bed at six years of age and about fifteen minutes less each year thereafter until maturity. Assuming that the rising hour is seven o'clock and that it remains the same during childhood, the bed hour for the six year old would be seven-thirty, for the ten year old eight-thirty, for the fourteen year old nine-thirty, and for the eighteen year old ten-thirty.*

Such figures may serve as a guide in checking a particular child's routines. All children do not require the same amount of sleep. The rate of growth undoubtedly determines, in part at least, the amount of sleep a child needs. The child's activity is another factor. Reasonable activity increases the sleep required, and fatigue interferes with normal sleep. A child who goes to sleep promptly, awakens by himself, is energetic and ready for breakfast and the day's activities, and can take what the day offers, is undoubtedly having enough sleep. On the other hand, the child who has to be called each morning, who takes a long time to go to sleep at night, and who is played out early in the day needs more sleep.

Children in their periods of rapid growth may well need more sleep than at other times. Adolescence may be one of these periods. Sometimes these children are accused of being lazy because they sleep late in the morning, while, in reality, this is an expression of a physiological need. An adolescent needs long hours of sleep. A reasonably early bed hour is necessary for the adolescent, therefore, since he cannot sleep longer in the morning and be late to school.

Fatigue. When the balance between activity and rest is disturbed and activity outweighs rest, fatigue results. Acute fatigue

* The advantage of an early bed hour was indicated in a study by Seham and Schey,³⁷⁰ in which they found that the children who got more sleep went to sleep more quickly. These children took fifteen to thirty minutes in contrast to as much as an hour for children who were having inadequate sleep.

follows sudden excessive activity. Fatigue becomes chronic when the excess of activity over rest is prolonged or repeated. In chronic fatigue, the body's capacity for work is lowered, the tissues become damaged or less fit, resistance is lowered, and a long period of rest is necessary for recovery. In childhood, fatigue develops more quickly than later because of the immaturity of tissues and the energy expended in growth. According to Seham,⁸⁶⁹ the causal factor of fatigue in most children is inadequate food,* inadequate sleep or excessive daily activity or a combination of these. In some cases, the origin lies in an illness or a chronic infection. In other cases it is emotional frustration or strain.

Different children react in different ways to fatigue, depending upon which system of the body becomes tired most easily. If his digestion is weak, the child reacts by loss of appetite, vomiting or diarrhea. In the case of a child with a sensitive nervous system restlessness, overactivity, irritability, sleeplessness, headaches and such conditions will be the first signs. Changes in the circulatory system, indicated by pallor or a dusky color, may appear. Body temperature may become unstable. Almost any acutely tired child is cranky and unreasonable, cries on slight provocation and denies that he is tired. The first results of fatigue are often increased activity and excitability. Later, the child usually becomes listless and inactive. As fatigue progresses, the child may develop dark circles and puffiness under his eyes. He may be unable to control certain muscles and tremor of the hands or muscle twitches may appear. Speech is sometimes affected, so that the child stammers or stutters.

Teachers²⁹⁵ have reported cases to show that the tired child in school may demonstrate inability to cooperate in group enterprises, his initiative may be low, and he has short attention span. He may develop a defense mechanism of indifference to his environment.

Children who are fatigued need a well-balanced program of rest and play in which there are long periods of relaxation and short periods of activity. As capacity for activity increases, the length of the activity periods may be increased. Exercise is important in improving the tone of the muscles and other tissues. The chronically tired child should have a thorough physical examination, increased rest, a good diet, with emphasis on the "protective" foods, fewer radio and movie programs and a satisfactory

* Goodenough⁸⁹¹ reports a study of anger in children in which she found a high proportion of the temper tantrums of preschool children occurring within one-half hour before meals. Fatigue mounts at these times because of need of food.

"emotional climate" in the home. Re-read the case study at the end of Chapter 1 in this connection.

QUESTIONS FOR CLASS STUDY

- I. Plan a day's diet for a kindergarten child; for a high school boy.
- II. Visit a school cafeteria.
 1. Observe the room and equipment, the kind and quality of food served, the procedure during the noon-hour, the selection of foods made by the children.
 2. Evaluate what you see from the point of view of nutrition and education.
 3. Plan some ways of educating children in the selection of good lunches.
- III. A mother asks you, "Why should I give my child milk, whole grain cereals, and green vegetables?" What would you say to her?
- IV. What would you say in order to explain to an adolescent girl the value of good physical habits of eating, sleeping, activity and elimination?
- V. Paul is six years old and in the first grade. His mother reports that he takes a long time to go to sleep, is often restless during the night and has to be wakened in the morning. She realizes that something is wrong and asks for help. How would you proceed?
- VI. Visit a school classroom or recreational group and look for possible signs of fatigue. Enumerate them. Can you recognize the probable causes? Plan a regimen for these fatigued children.
- VII. A kindergarten child has to go to the toilet about four times during the morning. This has happened for several days. What possible contributing factors should the teacher investigate?
- VIII. A nine-year-old boy is a poor eater. He is not hungry at breakfast and eats a little cream of wheat cereal with sugar and cream and some orange juice under pressure from his mother. At noon he has an hour for lunch. He hurries home clamoring for food, drinks his milk and eats some bread promptly, takes a few bites of egg and vegetable and then wants to go out to play with the boy next door. In the afternoon he raids the ice box. He is not hungry at dinner time, but with pressure from both parents eats a little of everything. By 8:30, his bed hour, he is hungry and has a large glass of milk with ovaltine. What suggestions would you make to the mother?
- IX. Observe the eating behavior of a school-aged child in his home or at a restaurant. Discuss his eating behavior in relation to his developmental status and his parents' behavior and attitudes.

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5. INFLUENCES ON GROWTH.

Home, School, Church, Camps

THE HOME AS AN INFLUENCE ON GROWTH

Parents Are the Child's Inheritance and His Earliest and Most Insistent Environment. There is no disagreement among students of child development that, of all the agencies of society which affect children, the home exerts the first and most insistent influence.* It is inevitable that the effect of the home should be discussed in many places throughout this book. There are, however, some things which need to be said in a separate unit.

The child gets his heredity from his parents. He also gets his earliest and most important environment from them. Unless his life is unusual, the child, upon entering school, knows little aside from what his home teaches him in the way of emotional reactions, of standards of behavior, of patterns of daily living with all that this implies in the setting of attitudes toward health, work, people and life in general. If his neighborhood offers free play with other children he may catch their colds and thus build some preparatory physical immunity; he may catch some of their standards of behavior and thus begin the process of intelligent judgment of standards; and he will have begun his social adjustments.

* In addition to ample evidence given throughout this book, the following studies may be of interest:

Hartshorne, May and Shuttlesworth⁴⁴⁷ in studying the influence of parents, friends, club leaders and others upon children's ideas of right and wrong found the correlation between child and parent to be higher than the correlation between child and any other influence, the correlation between mother and child being higher than that between father and child.

Symonds,⁹⁸⁰ in a careful study of parent-child relationships concluded that if one or both parents strongly rejected a child he tends to become overaggressive or hostile, or may resort to truancy, lying or stealing. If, on the other hand, one or both parents overprotect the child he tends to remain infantile in demands upon others, overdependent and relatively uncooperative in situations requiring give and take.

Wallenstein,¹⁰³⁵ in a study of character and personality of over 3000 school children, found that the 17 per cent of these children who came from broken homes showed inferior character and personality development when compared to the 83 per cent who came from so-called normal homes.

In the home, consciously or unconsciously, the parents prepare the child for school. This transition from a life of freedom, in which he is treated almost wholly as an individual, into an experience in which he is one of many with its necessary emphasis on the group, can be made an easy one if parents plan well. His habits of sleep, elimination and eating need to be established in relation to his future school hours, so that, upon entering school, there will be no need for readjustments in his routines.* A physical check-up should be made before school entrance to reveal his physical assets and liabilities. Psychological preparation is of equal importance. A child who has had contacts outside of the home, has played with other children and been taken to visit the school will, all other things being equal, have an easier time adjusting to school life than a child deprived of these opportunities. Some writers believe that the fatigue found frequently in the early school years could be reduced by a more adequate preparation for school. Edwards and Tamblyn²⁹⁵ found that 65 per cent of children with chronic fatigue in a school in Ontario were in the kindergarten and first three grades. They agree with Seham⁸⁶⁹ in believing that the home, as well as the school, is responsible for this condition.

Entrance into school places the child under the care and influence of the school as a social agency for something like one-fifth to one-fourth of his waking time from the age of five to school-leaving age.† From school entrance his waking time in the neighborhood and among his peers increases from about one-fourth as a young child to one-half as an adolescent. Conversely, the home retains the remaining one-half of the waking time of the younger child and one-fourth of the adolescent's. However, the home preserves more than one-half to one-fourth of the influence, since it has the child for meals and at bedtime, both periods well known as more impressionable periods than an equal number of other clock hours. Even after the young person has left school, we find an appreciable proportion of them remaining at home.

The home plays several roles in the child's life. As has been said, it is, first, his background of physical, psychological and social inheritance. It not only gives him his bodily inheritance, but the standards and expectations of *his* particular family background. In the ordinary course of things, the home feeds, clothes and shelters him, thus laying the foundations of his present and future

* An excellent recent book on health in the family and its importance to the growing child is Todd and Freeman.¹⁰⁰⁷

† This is computed on a twelve months' basis. During the school months the proportion is, of course, somewhat higher.

health, both physical and mental. Parents protect him from diseases or, through their ignorance or carelessness, expose him to infections which may affect his growth.* They provide (or should provide) him with affection, a sense of "belongingness," a satisfactory discipline, a working set of good physical and psychological habits and attitudes. His parents are his background and his tradition, his protectors and providers, his earliest guiders and educators, and his closest companions. They set the atmosphere for his moral and ethical standards, his physical well-being, his aesthetic appreciations, his concepts of family living, and his philosophy of life in general.^{209, 347, 623, 666, 834}

The child's reaction to his home and his incorporation of it into his own feelings is described later (p. 183). Gesell³⁷⁷ gives a good summary of the developmental increments by which the child gains progressive insight into the meaning of family life. He found that among the children he studied the child's identification with his home has become personal and self-conscious, even to the extent of boasting about his home and his family by five years of age. By six years, even though the child seems self-centered, he takes an interest in family outings, family secrets, and in paternal and maternal relatives.

Seven (years) † in his little serious way has a deepened sense of the family as an institution; he is proud of his home and family possessions; even his negative behavior betrays an emotional strengthening of the family ties. Eight is somewhat less subjective; he is interested in the family as a going concern, and at a festival gathering he is especially anxious that everyone should be having a full share of the good time.³⁷⁷

By nine years the child is showing a tendency to be on his own away from his family yet he shows increased awareness of family standards, and a greater sensitivity which denotes a deepening identification with his family. The basic orientations to the family, Gesell says, "are well-nigh complete by the age of ten."³⁷⁷

Other factors in the home are important also. The actual physical

* Parents may transmit infections through themselves or by employing some infected person in the home. The Committee on Contact Infections for the Society of Pediatrics calls attention to the fact that diseases are not infrequently transmitted to children by adults. Such diseases as tuberculosis, syphilis, gonorrhea, typhoid fever, respiratory and skin infections are passed on to children. In a campaign, in Knoxville, Tennessee, of routine examinations of domestic servants, twelve with tuberculosis, five typhoid carriers and many with syphilis were found. The Committee recommended an educational program for periodic health examinations of parents, servants and other adults having intimate contact with children.

Report of Committee on Contact Infection; *Journal of Pediatrics*, 13, No. 1, 1938, pp. 131-133.

† Parenthesis ours.

space in the child's home and around it will determine whether he has rest and quiet, play and exercise, or nagging and overcrowding, tension and unrest. The number and kind of people in this space will determine his discipline, his cooperation, his tensions and his anxieties, as well as his satisfactions and joys in family activities, his loyalties and his affections. Inadequate facilities usually mean inadequate nutrition, inadequate habit-training, too little rest, too much tension. Adequate facilities, if coupled with adequate understanding, may and should mean good nutrition, sufficient rest, proper intellectual and bodily exercise, good habit-training, plenty of love, the right discipline, and an otherwise "good life." After a busy day in school, the child needs relaxation. The conditions in the home determine whether or not he will be able to recuperate from the day's activities and thereby be fresh for the next day's program.

No School Can Hope to Understand Any Child Until It Knows the Fundamentals at Least of His Background at Home. Where the child comes from (biologically, racially, socially), what has happened to him in the past, and what is happening now are minimal essentials to understanding him. Is he well cared for or neglected? How clean he is and how well dressed are not always accurate indicators of this. Some ragged, underfed-looking children have the richest possible background of love and affectional security, the soundest discipline, and the happiest life. Some tidy, well-fed looking children are rejected and unloved in all the ways that are hard to detect but that matter vitally to the child. The child from an orthodox Jewish home or an Italian home close to the European tradition may be deeply loved but badly disciplined, or the child from a "typical American" home may be beautifully disciplined yet failing in school because of jealousy of a more favored sibling. Children who look and act healthy now may be carrying the fears or insecurities of earlier illnesses. The best intentioned parent, thoroughly cooperative with the school, may be too conscientious and overtense in his relationship to his child; whereas, some parents, who appear uncooperative with the school on the surface, are essentially sound in the attitude that the school is the child's own experience and one in which he should be free to work out his own problems without home interferences. The school has an obligation to understand these things.

Strains and Satisfactions Affect Growth. Not only must we know something of the child's physical and sociological inheritance, of the adequacy of his food, clothing and shelter, of his security in affection, of the extent and method of discipline* and of the am-

* For a more complete discussion of the amount and kind of discipline and affection desirable for children, see Bibliography.^{146, 415, 723, 821, 825, 886}

bitions and plans which his family have for him. We must also be able to estimate, on the one hand, the strains and, on the other hand, the satisfactions of his life outside of school as well as in school. Strains and satisfactions result from how well the child fits what is expected of him and from what experiences he has. If too much is required of his strength and ability, strain results. If, on the other hand, he "fits" the requirements (and this is, of course, true in school as well as out), he finds satisfaction in his situation. To know what home and neighborhood and school should be expecting, we must, of course, know the ability of the child; and, in turn, the home, school, and playground supervisor, or other neighborhood agency, must each know what else is being expected of the child than the load placed upon him by any one of them.

One needs to know just what competition each child is meeting; for it is one thing for a child with an 80 I.Q. to be competing with a group of 60 to 90 I.Q.'s, and quite a different thing to be competing in the family or at play or in the school with I.Q.'s of 100 to 140. Similarly, a borderline case of malnutrition may be able to find genuine satisfaction in a fresh air room where he is able to keep the pace, but may be constantly up against dissatisfaction when required to compete with children markedly stronger than he is.

The effect upon the child of adult expectation is particularly sharp in the family where the group is smaller than in the school and where, because of this, the impact of adult expectation and of contrast with other children is more evident. A child of high energy level and, therefore, of great activity, may get along very happily in a family where it is realized that he will be something of a nuisance but that this is a small price to pay if his great activity is to lead to wide learning. Whereas, the same child will suffer acute strain in a family in which his learning potentialities are not understood, but in which he is regarded as an acute behavior problem and treated as such.

Family Attitudes and Interpersonal Relationships Directly Affect Children's Growth. Important to children, too, are the interpersonal relationships within their homes. These are extremely complex.

To understand fully *parental relationships*, that fluid composite of rationalities and irrationalities, satisfactions and tensions, in which biological, cultural and individual factors are inextricably bound, is beyond our grasp.⁶⁴⁶

However, there are a few highlights worthy of attention because we have some data to back up our "clinical knowledge." Family

attitudes toward health matter a good deal to children. A sane regard for health, good health habits and reasonable precautions for guarding health, but not coddling or fear of illness, is probably the best attitude.

Family *acceptance of one's social position*, or apology for it, or overweening ambition to change it, will affect a child's attitude and his approach to people, as well as toward his work.

Acceptance of the child's intelligence, his *appearance*, his *sex* (whether a boy or a girl), and his *vigor*, or rejection of any of these, has a marked influence upon the child's attitude toward himself and, therefore, upon his approach to everything he does.

Similarly, it is of use to know the *position of the child's family in the community*, whether, for example, he is the "poor" child in a fairly well-to-do community, the child of a drunkard, or a prison-father or, on the other hand, the banker's child in a small town, or the minister's child, or an adopted child, etc. All these factors exert pressures upon the child, operating, as a rule, through the expectation or attitude of the community in which the child lives.

Effect of Broken Homes. It is a matter of general observation that unhappiness at home, or the distractions and lack of normal home life affect the quality of children's school work. One study²⁴² of marks of 300 high school pupils from broken homes and 300 from normal homes showed that the school achievement of the pupils from broken homes was inferior to that of pupils from normal homes. Since the pupils in the two groups were carefully paired for intelligence, sex, nationality, chronological age and grade, the conclusion was that broken-home background has a deleterious effect upon school achievement. Such home factors as disruption by the death of either parent, divorce or separation of parents, unemployment of the father, and employment of the mother outside the home subject the child to various forms of emotional disturbance and conflict. This distracts his attention from his school work, undermines his effort and prevents the most effective application of his abilities.

Teachers can often discover reasons why children are not working up to capacity by making friends with them in such a way as to allow the child to express any anxiety which he may be able to verbalize. At no time, however, should the teacher probe into the private lives and thought of her pupils, since, by so doing, she may either further distress the child because he feels he has in an unguarded moment betrayed his family, or because probing may raise to the conscious level thoughts which the child may be emotionally unable to face.

Landis,⁶¹⁰ in discussing broken homes says:

A break in the home by death, divorce, or separation of parents is always a critical experience in the life of an adolescent. Such experience may draw the remaining members closer together and make for greater integration of personality. It is more likely, however, especially in the case of divorce or separation, to create problems of adjustment for the child which may lead to delinquency. Studies of delinquency show relatively high rates among children from broken homes.

Landis goes on to explain that the relationship between broken homes and delinquency is a perfectly logical one. The absence of one parent removes one source of authority;* the remaining member of the family must usually be the breadwinner so that even his authority is absent during working hours. Sometimes in the conflict between parents an attempt is made by each to win the child away from the other; the result is often disloyalty to both and a feeling that neither parent stands for high standards of behavior and therefore cannot expect them from the child.

The White House Conference report^{1053g} shows that broken homes produce a higher proportion of poorly adjusted children than do unbroken homes. They point out, however, that frequently children from broken homes have well-adjusted personalities, whereas children from unbroken homes may have poor adjustment. They note, in addition, that one must differentiate here between the biologically broken home (death, separation or divorce) and the psychologically broken home in which members are far apart in emotions, sentiments and basic loyalties. The latter serves in the life of the child as an effective producer of maladjustment, sometimes even more than does the biological fact of brokenness.

Position of the Child in the Family. It is also important to know whether the child is an only child, an oldest child, a youngest or a middle child, an only boy among girls, or an only girl among boys, the pretty one among ordinary siblings, or the ugly duckling, the smart one among ordinary (or average among dull) siblings, or the reverse. Reports of research findings on the effect of each of these factors can be found in numerous child development research publications.^{396, 723, 821} However, the literature is not in agreement about what the effect is of being an "only" or an "oldest" child, or most of the other classifications mentioned above. There is agreement about the fact that children *are* definitely influenced by these factors, as every clinician knows, but the

* The effect of this was clearly demonstrated during the recent war when absence of the father was reflected in the less effective discipline evidenced, particularly among the boys.

interplay of circumstances is so complex that it is hard to say that any one of these factors will always produce a known and predictable result.

Only children, for example, have been the topic of many studies which do not agree in their findings. One study²³⁶ reports that men who are only children show 5.72 times the average in the number of their divorces; men who are middle children only 0.58 of the average. Women who are only children show 4.18 times the average in divorces; women who are middle children only 0.65 of the average. This implies strongly that only children fail from four to five times as often in marriage as the average of the population, whereas middle children, who are supposedly less spoiled, who expect less from other people and who have learned to adapt themselves to others, make a considerably better than average success of their marriages. Only children were found to produce a higher proportion of delinquency in two studies,^{171, 765} whereas, in one other study¹⁰⁰ it is reported that misdemeanors are fewest among only children, and in two others^{47, 906} that there is no unduly large proportion of delinquency among only children. One study¹⁷² reports that only children do not get along as well in school, the retardation being due to immaturity; whereas other studies^{103, 1081} report only children to be more intelligent than other children, to be better in health habits, social traits, and academic achievement. In general, the weight of evidence seems to be in the direction of a better chance for only children to get educational and health privileges, although the literature also indicates that "spoiled" only children do exist and in large numbers, and that, among the privileged upper socio-economic groups, only children are often nervous or delinquent.

The literature agrees fairly well that *oldest children* are somewhat more delinquent than other children (the assumption being that parents learn the job of parenthood on the first child), and that they are more often jealous than other children. Several studies indicate that children in large families have lower intelligences than do the children of smaller families. However, the factor of correlation between large families and lower socio-economic status should be recalled here, as should all of the complex factors which influence growth. We must not fall into the error of thinking that only children, or oldest children, or only boys, show traits simply because they are only or oldest, but rather because only children live in small families, often of upper socio-economic status; oldest children are first children and have younger parents. These factors, as well as the "onliness" or the fact of being "oldest," are important.

Competition within the Family May Produce Important Emotional Reactions. Most children have conflicting feelings of love and hate (referred to in the literature as "ambivalent" feelings) about their parents on certain occasions.^{501, 784} Toward brothers and sisters they have these feelings frequently.

Jealousy between siblings, especially of an older child for a new baby, cannot be avoided entirely, even by good preparation for a new baby,⁸⁷¹ but is not so likely to endure into the later years of childhood if the children are within the same range of intellectual ability, that is, within five points of I.Q., as when there is a greater divergence of intelligence.⁹⁰⁸ It is especially likely to occur, however, if the older child is duller than the younger child, and is almost inevitable if a younger child threatens to overtake, or does overtake, the older in school grade. Murphy and associates⁷²³ consider jealousy as a form of aggressive behavior expressed against a child who threatens the status of another child. This aggressive behavior is likely to be exhibited in bodily attack upon the younger sibling; less frequently, it is expressed by no overt act against the new child, but rather by personality changes in the jealous child which appear at the time of the birth of the new child or soon thereafter. Occasionally, it finds its expression in ignoring the new baby or by denying its presence. MacFarland⁶⁴⁸ in a study of young sisters found clear evidences of both love and hate among preschool children, as well as among children of elementary school age, behavior which revealed itself in open conflict, rivalry, bossing, submission, sympathy, helping, lending, protection. In spite of current writings which might lead one to assume that rivalry and hatred are the most characteristic feelings between siblings, MacFarland found these feelings present only occasionally and not as frequently as the more charitable feelings. Unfortunately, the majority of studies to date have centered on the less pleasant traits of personality, perhaps because they cause more trouble.

Parents or teachers need not worry too greatly when children show competitiveness for a place in the family or in the school. It is quite normal behavior. One needs to feel concern about such behavior only when it becomes too intense or vicious, in which case the cure is not an attack upon or disciplinary program with the jealous child. This only convinces him still further that he is not loved, or that he has no status and, therefore, deepens the cause of his jealousy. Every effort should be made to assure him of his place in the family or in the school room, and that there is room in the house and school and in the hearts of the family or teachers for two or more children at once. He may, of course, have a false philosophy of love, believing that any love or attention shown

someone else must, of necessity, be taken away from him. In this case, he needs to learn that love becomes greater for being given away, and that the parents or teachers who love or give attention to a new child have even more love and understanding, because of that, to give to the other children already in the family or to the other children in the schoolroom.

THE SCHOOL AND CHILD GROWTH

Schools Reach All Children Who Are Physically and Mentally Able. Among community influences, the school is the one agency which reaches, by compulsion of the law, all of the community's children. In primitive society no formal school is necessary. The child gains knowledge of the necessary living skills and social codes from his direct contact with his family and the activities of the community. Certain puberty ceremonies and the preparation for them constitute a sort of tribal school, and the examination system is initiation into adult responsibilities and adult privileges. With the development of philosophies and literature, even of the arts of the medicine man, specific and concentrated teaching became necessary in order to keep alive the accumulated heritage of knowledge. This was done, however, on an individual tutorial basis, the learning being limited to a scant few of each tribal group. Even with the art and literature of the Greek civilization, the teaching was still limited to a small social class whose responsibility it became to preserve the cultural heritage and to contribute to it. It has only been in the last century that any type of "book-learning" has been made available to the masses of people. Even today, compulsory education of more than three years is largely limited to the North American continent and to Europe. However, on these continents, and now, increasingly, in Central and South America, the school, as a state-approved agency, is reaching an important sector of the impressionable years of all children.

What Should Schools Teach? This increase in numbers of schools and in attendance does not necessarily mean better education.* However, the school has stated certain objectives, among

* Thorndike, E. L., in an address before the Graduate School of Education at the University of Chicago, said: "The general spirit of our country for the past 100 years has been to make great efforts to increase the amount of education, but to pay relatively little attention to its distribution. The plea of reformers has been for more education, regardless of who received it. There has been an indiscriminate urge toward more schools, longer school years and later compulsory ages. Education of any sort for any person has been recommended as a national investment without much consideration of the differences in safety

which are not only the teaching of basic subject matter, but also the promotion of health, development of character, and teaching of citizenship. What relationship the school bears to the home, church, and other agencies in this teaching is well stated by Olsen when he points out that we have passed in the first four decades of the twentieth century, "from a book-centered, through a child-centered, into a society-centered school," and says:

What, then, is the proper function of the school in this total educative process within the community? How shall the democratic school envisage its comprehensive task as society's chief agency for the formal education of youth? Clearly its function is a residual one; its obligation is to start its educative process where those of the other community agencies leave off or prove ineffective; its inclusive purpose must be that of helping children learn with the minimum of time and energy those things they need to know for personal-social-civic efficiency that they do not adequately learn elsewhere.⁷⁴⁹

Next to the home, the most important agency in society for the transmission of the cultural heritage to children is the school. The home as we have seen, transmits vital attitudes, "trains" the child in basic living habits, serves throughout the childhood years as a translator or interpreter of those cultural mores which the child meets outside as well as inside of the home. The school accepts the major responsibility for transmitting and translating or interpreting those aspects of the cultural heritage which have been formalized into "school subjects" such as history, science, etc.* This is its academic job, and the one in which it has little competition or aid from other public agencies.

The schools, however, are no longer limiting themselves to this job. Accepting the thesis that they must develop whatever aspects of personal-social-civic efficiency are not adequately learned else-

* Gesell and Ilg,³⁷⁷ in *The Child from Five to Ten* says: "The curriculum should not be envisaged as blocks of academic requirements, but as areas of educational opportunity corresponding to the major facets of our culture. These facets correspond to three culture areas. We may well think in terms of these three culture areas rather than in terms of the time honored 3 R's. Three Culture Areas: 1. *Language Arts* (conversation; drawing; writing; spelling; reading; listening; looking). 2. *The Sciences* (mathematics; natural science—physics, chemistry, biology; social science—geography, history, civics). 3. *Personal-social Participation* (creative self-expression; arts and crafts; dancing, poetry, invention, technology, engineering; pre-vocational skills; social cooperation and leadership; aesthetic, ethical and spiritual appreciations)."

and income which may attach to the investment in certain boys and girls rather than in others. The mere volume of education has been taken as a measure of idealism, somewhat as the mere volume of gifts to beggars of all sorts used to be taken as a measure of philanthropy and charity."

where, the school has accepted a wider responsibility than the mere teaching of academics. This acceptance of wider obligations to children has manifested itself in many ways. "Character education," "education for citizenship," "training for responsibility" are all familiar phrases to educators today.

The Kindergarten's Contribution. Soon after the beginning of the century, the kindergarten movement attempted to set up a program which would give careful attention to the physical needs of children, which would make a satisfactory introduction to the formal school through a full recognition of and contact with the homes from which the children came. This movement, in the beginning, had a fairly clear understanding of how schools could function in full light of children's growth needs. Unfortunately, however, the kindergartens were too soon absorbed into the public school systems, there to suffer the restrictions of budget, the pressure of numbers, and, most seriously, the pressure of stereotypy which at that time characterized the public schools of our country. The inevitable result was that, although the kindergarten was able to hold out against the traditional idea that schools must crowd four- and five-year-olds with reading and number work, they were, nevertheless, forced to surrender most of their physical health program and much of their home-school-cooperation vision.

The Nursery School's Contribution. Twenty years later the nursery school movement was introduced into this country. This movement, fortunately, originated in close alliance with child study laboratories and family-life teaching centers. Its original purposes were (1) to study the growth of children and (2) to serve as a laboratory for schools teaching child development and family life. Inevitably, then, the nursery school came to be an extension of the home upward, rather than, as the kindergarten was, an extension of the school downward. This carried implications of paramount importance in the formulation of nursery school "curriculum" and methods. School became, first, a healthy environment for children, with proper food, proper sleep, and proper toilet facilities. Children received careful physical examinations, daily inspection to prevent the spread of contagious diseases, well-balanced hot meals at noon, rest before lunch, a nap afterward. Special attention was paid to cooperation with the child's home in all details of the day, so that home experience and school experience flowed along for the child in an unbroken continuum. Parents kept in close touch with the activities of the school; the school received daily reports of home activities.

This careful attention to physical activity and to home-school cooperation was, of course, imperative in any school program which

attempted the care of very young children. It became a conscious part of the original plan which regarded the physical growth of the child as an important responsibility of the school. The same careful home-school cooperation was worked out for intellectual and social growth as for physical growth. These nursery school programs and such experimental elementary school programs as followed in the wake of child development research have come to be a nucleus for studying total growth patterns, and for experimenting with how schools can meet children's basic growth needs.*

In 1933, with the development of Works Progress Administration Nursery Schools, which, fortunately, soon came under the supervision of professionally trained administrators, the nursery school movement spread into almost every State of the Union. Not all of these schools could serve the well-balanced meal at noon and provide a nap, but most of them did. Many of them went into public school buildings with the approval of the local public school administration. They were not, of course, all adequately run. The general standard, however, was high, with the result that the nursery school movement began to affect the general, traditional school system at the bottom end, as the National Youth Administration, Civilian Conservation Corps, and Works Progress Administration Adult Education programs left a residual effect at the top end.

As mothers went to work in war plants in the recent war, nursery schools on a ten-hour day were financed at least in part by Federal and State funds; many were housed in public school buildings. After-school recreation centers were also opened, many of them in public school buildings to care for children of early elementary school age whose mothers were working on late afternoon and evening shifts in the war plants. On the whole, these nursery school and recreation projects were supervised by trained personnel who understood informal education. The effect of these

* From 1925 on, such centers as the following have been doing outstanding work in this field: Cornell University, Department of Child Development and Family Relationships in the College of Home Economics; Merrill-Palmer School, Detroit; University of California, Institute for Child Welfare Research; University of Iowa, Child Welfare Research Station; University of Minnesota, Institute for Child Welfare; University of Toronto, St. George's School; Yale University.

Some of these were financed, or still are financed, by private endowment. However, a number of public educational institutions have developed child development programs without endowment or private aid. Among these are: The University of Michigan Graduate School of Experimental Education; Ohio State University; University of Nebraska; University of Illinois; Oregon State College; National College of Education; Pennsylvania State College; Winnetka (Illinois) Public Schools; Highland Park (Michigan) Public Schools.

more informal projects upon the work of the school during its regular hours remains to be seen.

■ In any case, the percentage of primary grades in our country which are proceeding to adjust better to children's intellectual and social needs is genuinely encouraging. Aside from the nursery school, however, with its careful attention to adequate physical examination in order to exclude those with contagious diseases (even the common cold), with its well-balanced, hot meal and its complete rest period, the physical health and growth needs of school children are being met far less adequately than are their intellectual and social needs.

A Current Pressing Problem. With the opening of school in the fall of 1947 the schools received the first of the war babies—children born since Pearl Harbor. There is not only an unusually large number of them to move along through school for the ensuing span of school years; there is also evidence that they will offer the schools some special problems. Hymes⁴⁹⁶ states the situation as follows:

The War Babies are coming to school! Now and until 1950 they will come—the children born since Pearl Harbor. They are old enough now to enter your kindergartens and your first grades.

These children lived their early lives while our country fought a war. Some stood it well; other children were hurt. These are the ones teachers must spot now . . . and understand them and help them.

Their fathers went away. Their mothers worked: they were tired mothers and busy and worried. Their families doubled up with relatives; homes were over-crowded and tense. Some of these children traveled when they were babies from Army camp to Army camp—an early life of constant change, weary mothers, continuous upsets.

The war is far away now. We like to draw memory's curtain shut but these children will not let us. They are coming to school now and they bring a war-load with them. To understand them, to help them, we must open up the curtain and remember the lives they have lived.

He goes on to say that the problems of these children are not entirely new, but that the fact is that there is now a large group of children rather than a few who have lived through their early preschool years without the fathers who later returned and had to be absorbed into the family; that there are now many more children whose mothers carried the double burden of breadwinning and motherhood. Their very numbers offer part of the problem because they will increase the crowding in the schoolrooms. Their "ragged" emotional histories will make them more difficult to handle. They are, as Hymes (p. 8) puts it, "the Purple Heart Brigade"—"the

children who were injured by the war . . . these are the wounded, still convalescing from their hurts." He suggests the following for teachers who must work with these children:

1. You must want to help children.
2. You must believe that children want to do the right thing.
3. If you want to understand them so you can know you are of help, find some means of going behind the scenes into the backgrounds and histories of these children.
4. Rome was not built in a day. Take your time. Be patient.
5. Stay away from blaming.
6. Don't take personally things the children do.
7. Go on inside of you. Check your own attitude toward children and toward your work.

School is often the place where these children need a friend to help them orient themselves to an otherwise bewildering and disturbed life.

Progressive Education's Contribution. The Progressive Education Association has achieved a great deal in the reform not only of the primary grades but also of stereotyped secondary education. Such experiments as the Eight-Year Study of this Association in secondary schools⁷ have demonstrated that rather basic modifications can be made in the traditional secondary school pattern without loss in academic accomplishment and with considerable gain in social and personality development. Fowler goes so far as to predict the secondary school of the future as follows:

(1) a core curriculum requiring about one-third to one-half of the school day, during which time the problems of personal and social living will be the chief concern; (2) a specialized curriculum during the rest of the day, which will be occupied with subjects and activities selected with reference to the special aptitudes and interests of the student.³³³

He predicts an elimination of the old "patch-work time-tables," an increased emphasis upon democratic participation by the pupils, more democratic relationships between teachers and administration, more and better guidance programs, a curriculum which is in much closer relationship to the life of the community, which will more closely meet the demands of the contemporary adult society, and which will, as part of this objective, unify various subject fields. The main change, he feels, will be in the direction of an attempt to achieve continuity of growth for children through changes in the fundamental purposes or objectives of the school. This is, in general, in line with the increasing awareness of the need of fitting school curricula and school schedules to the growth

needs of children of secondary school age evidenced in a number of current writings.*

This means, first, a school setup which provides for the physical needs of young people: freedom from jammed classrooms and halls, convenient locker space, drinking-fountains, adequate toilet facilities, some spot in the school where the child belongs, a seat in a room which is his home room, and a place to rest when necessary; adequate lunch rooms, good food, supervised and provided by school authorities and not by commercial concessions; an adequate noon hour set at an appropriate time of the day; a reasonable distribution of academic classes, shop, music, gym or auditorium, and study periods; a reasonable load of home work; a reasonable participation in extracurricular activities. These activities should vary, not with what the child is willing to do, but with what his academic ability, his physical health, and his home situation dictate as "good" for him from the viewpoint of promoting his physical, his academic, and his personal growth.

We see clear indications of the trend toward better teacher-pupil relationships in such publications as Ryan's *Mental Health through Education*,⁸⁵³ in which he points out that educators are noting and making use of basic mental hygiene concepts. In improved teacher-pupil relationships, for example, we see the influence of pronouncements of psychiatrists and mental hygienists that teachers' personalities leave a marked impression upon children's behavior and attitudes.† Poor methods of approach by the teacher can, and often do, produce behavior problems in the classroom.²¹ Good methods and an understanding approach on the part of the teacher make school not only a profitable experience for the children, but a joyful experience as well. Ryan calls attention to the fact that, if one were to search for the most important single factor in the teacher-child relationship, one would find that friendliness would stand out in simple, direct forcefulness. Teachers are, as a whole, far more friendly in their relationships with children than they used to be, not only because we have a far freer conception of

* See Bibliography^{610, 685, 740, 886, 995}, and also Department of Supervisors and Directors of Instruction, National Education Association: *Thirteenth Yearbook, 1940: Mental Health in the Classroom*, N. E. A., Wash., D. C.

† The school's contribution to the development of character in the child seems, when it is a constructive one, to be made largely through the influence of the teacher and the morale of the class group. Hartshorne and May⁴⁴⁵ in their studies of the influence of the school upon character, concluded that the improvement of children in character came, not through length of attendance at school, but primarily through teacher-pupil and class-pupil relationships. Taylor⁹⁸⁷ reports a study in which a group of older adolescents were asked to depict some ideal adult. Half of them chose teachers rather than parents.

education as a whole, but also because of a recognition of the importance of a good teacher-pupil relationship in the child's social and emotional development.

Much Still to be Done. That there is much to be done in the direction of fitting the school to children's needs,* particularly in making school meaningful to young people is indicated by the American Council on Education. In discussing the proportion of youth who, even now, with our recent large increases in high school and college registration, still leave school at the end of the eighth grade or at high school graduation, Bell says:

Our data suggest that many schools are so organized at present that young people have to go through the whole school program before they can be led to see any genuine value in it. This inevitably creates a sense of inadequacy among the majority of young people who drop out shortly after the completion of the elementary school. The answer is the development of educational programs so closely related to everyday living that each school year, instead of being a means to some more or less remote end, becomes in fact an end in itself.⁸²

In summarizing the situation from junior and senior high schools in relation to child development, the Committee on Workshops of the Progressive Education Association says:

The average junior and senior high school case of discipline is simply a human being in the midst of the uneven and rapid growth of puberty and adolescence who cannot get along sufficiently well with his fellow pupils or adults to avoid conflict situations. . . .

Among the school practices to be avoided are the following: mechanically applied systems of merits and demerits which finally engulf the wayward, course requirements designed for the 20 per cent who are being prepared for college and applied to the 80 per cent who are not interested, teachers who are utterly uncompromising with the very human nature of youth; lack of opportunity for students to participate in running the school community; subject matter for which pupils can see no use either now or later.⁶⁸⁵

This committee recommends that schools attempt to provide remedies for these evils through a good individual counseling program; through a program of student participation in school affairs; through stimulating teacher interest in pupils; and through "a very human understanding of the effect of development on behavior." They also recommend special attention to the orientation of entering pupils.

* *Witty et al.*¹⁰⁷² point out that our schools typically ignore the facts of continuous growth, particularly in the abrupt changes of attitude and method which occur between the elementary and junior high school, and again between the junior and senior high school.

The High School of the Future is described by McKenzie⁶⁶² as assisting the adolescent to take his place in life by helping him in his developmental tasks, and summarizes these as follows:

- a. Attaining individuality
 - (1) Progress toward an organized personality pattern
 - (2) An emerging philosophy of life involving a concept of values, desirable behavior, and a place in society
 - (3) An understanding of personal assets and liabilities
 - (4) A maturing of plans for future living
- b. Adjusting to changes resulting from physical growth
- c. Securing satisfying relationships with age-mates of both sexes
- d. Establishing independence from family
- e. Attaining adult status
 - (1) Vocational plans
 - (2) Family relations
 - (3) Social relations
 - (4) Citizenship

He adds that:

Obviously, the wise planning of programs of instruction and the giving of helpful counsel and advice are predicated upon a thorough grasp of the process through and by which individuals pass from childhood to maturity.

If this assistance is to be intelligent, the social and individual goals of the school must be clearly perceived, the levels of aspiration of the adolescent personalities must be known, and the progress of each individual must be assessed from time to time.

Physical Environment of Schools Important to Health and School Progress. Because schools either knowingly or unknowingly affect children's physical health in vital ways we shall turn now to consideration of the role which schools not only do play but could play in providing for children's physical well-being.

Harmon^{434, 435, 436} has reported on a long-range experimental program on child development begun in 1939 by the Division of Maternal and Child Health of the Texas State Department of Health and still in progress. Their purpose was to find ways and means of integrating the professions—teachers, psychologists, doctors, sociologists—concerned with childhood in order to promote optimal whole-child development and thereby reduce developmental defects and chronic health problems. The problems of the Texas school children were surveyed and the relationship between one defect and another and between defects and conditions in the schools were studied. After the survey was completed intensive studies were undertaken. Because of the extreme importance of

vision in education, these intensive studies began with a study of lighting and development.

In the survey it was found that 59 per cent of the Anglo-American children in the elementary schools had visual defects. Thirty-nine per cent of these children had eye defects not related to refraction. These defects increased from 18 per cent in the first grade to 82 per cent at the end of the elementary years. Among the children having eye difficulties there were some who had bodily asymmetries* which disturbed their eye relationships with materials in close work, thus introducing a hazard to good vision. These asymmetries in some instances could be traced to an attempt on the part of the child to relieve his eyes from glare or shadows.⁴³⁴

Of the children in the upper elementary schools who had nutritional defects, about two-thirds, or 12 per cent of the school population, were in classrooms where they were being overstimulated by programs which were not related to the physiological needs, and where activities were beyond their natural physical capacities. Not only may the nutritional status of a child impede his educational progress, but also the school may increase his nutritional problem. The author pointed out the possibility that schools may dissipate a child's energy for school activities by providing poor environment through inadequate buildings, curricula, and teaching methods.

About three-fourths of the children in the survey showed evidence of chronic upper respiratory infection. It was found that a certain number of these children in the upper elementary division rooms were so placed in the classrooms that they were being subjected to glare, seating problems and other stresses. For example, when the typical classroom was divided into quadrants, about 50 per cent of the children with chronic infections were found in the rear left quadrant nearest the back windows and thus subjected to unsatisfactory lighting conditions.

The author listed classroom factors which possibly contributed to the defects—sensory, nutritional, body asymmetries, chronic infections and behavior deviations. They are as follows: improper seating, improper lighting, improper placement of working materials, inadequate stimulation on the one hand, or overstimulation on the other, limitations of desk size or working surface area, improper books, notebooks, paper and other materials, crowding

* An asymmetry is a condition in which the two sides of the body are not alike in some respect. There are asymmetries of developmental and functional origin. An example of the former is the condition of one arm being shorter than the other; of the latter, one shoulder higher than the other due to a curvature of the spine produced by habitually poor posture.

of children at tables, temporary lacks of physiological, psychological or experiential readiness.

That improper lighting can contribute to defects was indicated by an intensive study^{434, 435} in which the health and school progress was observed before and after improving the lighting conditions of the classrooms. Three hundred ninety-six children were given thorough medical and nutritional examinations and visual, psychological and educational tests in November and again six months later in May. The rooms were rearranged to reduce sky glare and redecorated to secure a better distribution of natural light. During the six-month experimental period the refractive eye difficulties had been reduced by 57.1 per cent, the nonrefractive by 90.1 per cent; nutritional difficulties had dropped 44.5 per cent; and signs of chronic infection had dropped 30.9 per cent. At the same time, the children averaged a gain of ten and one-fifth months in educational age. In a school used as a control the mean educational age gain was six and four-fifths months. Here is experimental evidence* that improving some of the conditions in a school environment, which is not satisfactory, will make it possible for children to make better progress physically and in their school work. This longtime program of investigation should be followed with interest by all those who work with children and should make them aware of the need for frequent and regular check-up of the child's environment, in order to prevent obstacles from arising in his path of development.

School Conditions Which Need Attention. In order to make the school a healthy place for children, to promote positive health and reduce defects to a minimum, some of the conditions in school need attention. In an appeal to teachers and principals to provide a healthy environment and a healthy program for children, Lindquist lists the following:

1. The lighting, ventilation, posture in the mathematics, history and language rooms.
2. The acoustics in classrooms, halls, and dining rooms, which makes the average school between periods a nerve-shattering bedlam.
3. The thirty-minute lunch period, a good share of which is spent in a cafeteria lineup.
4. The programming of the big, husky low-brow in shop work where his big muscles get much needed play and the little anemic high-brow in bookish activities where his shoulders get rounder and his chest hollower by the minute.
5. The denying to emotionally tied up boys and girls the therapeutic ex-

* Luckiesh and Moss^{640, 641} also found that improvement in school progress followed improvement in school lighting conditions.

perience of free and untrammelled but skillfully stimulated and directed work in art materials. . . . The denial of these opportunities usually grows out of so-called schedule difficulties which in turn come about because we assume that these experiences must be had classwise.

6. The classification of children in groups according to mental rather than social, or physical, or even chronological age, with consequent warping of their conception of what constitutes growth and development.
7. The division of the day into short forty-five-minute periods which permit of only truncated and for the most part teacher-planned and imposed classroom experiences. They do not permit of participation by the pupil in planning of what he is going to do or in reflection upon the whole of what he has done.
8. The emphasis through our system of records and reports upon irrelevant and trivial outcomes of education such as courses and grades rather than upon the abilities, habits, and attitudes which education is supposed to foster.⁶³⁴

Ilg* in discussing the relationship of the school to children's growth lists the following as improvements which schools should make if they are to meet the growth needs of children:

1. In the kindergarten and early primary grades there should be a shorter schoolday or a break in the middle of the week, for example, Wednesday out.†

* Ilg, Frances, in a lecture at the Merrill-Palmer school, 1946. Ilg is co-author of "The Infant and Young Child in the Culture of Today" and of "The Child from Five to Ten."

† An experiment⁶³⁷ in Richmond, Virginia, between April, 1927 and April, 1928, demonstrated the value of cutting down the length of the school day in the early elementary years. Two schools, serving the same socio-economic group with approximately two hundred and fifty children in each school, began at the same hour, 8:45 A.M., but closed at different times. In School C, the children in the first two grades were dismissed for the day at 12:30 in contrast to 1:45 for the first grade and 2:00 o'clock for the second grade in School B. In School C the third graders left at 2:00 o'clock in contrast to 2:45 in School B. At the end of the year, the gains in weight in School C were 34.3 per cent greater than in School B. School C also had only 225 pupil days lost, while School B had 1677, a 600 per cent greater loss of time in the long-day school. Fewer children in the short-day school were reported fatigued after two months of the experiment, the percentage of fatigued children dropping from 52 per cent to 19 per cent. In the long-day school, the teachers reported 63.5 per cent of the children fatigued. It was suggested that this difference in the number of tired children may have accounted for the 18.5 per cent more A's in deportment in the short than in the long-day school.

Modification of school days should be made in terms of climate, the hours kept by the great majority of the children's parents, and other such factors laid against the children's growth needs. For example, we frequently find children inside of school buildings from 8:45 A.M. to 12:00 noon, and from 1:00 P.M. to 3:30 or 4:00 P.M. For six of the nine or ten months of the school year in

2. No marks for tardiness should be given before eight or nine years of age.

3. There should be constant communication between teacher and parent in the early school grades if anything goes wrong with the child.

4. There should be recognition of the difference between the developmental rates of boys and girls, especially in the learning of reading. Boys are more auditory in approach up to eight years of age; girls are visual earlier. Therefore, whereas girls usually learn to read at six to seven years of age, boys should be given simple shop experiences and other such experiences and should not be given much reading before eight years of age.

The site for the school, the plan of the building and the equipment and materials to be used should be considered in relation to the development and needs of the particular children who will spend so many hours of their day in school. Increasing emphasis is being given to provision for the safety, health and comfort of pupils and teachers.*

The protection of children's eyes by the use of adequate lighting and the proper selection of materials, such as paper and books, deserves special attention. When a child enters school, the use of the eyes for relatively fine or close work increases tremendously. Factors which produce eye fatigue, such as too little light, glare, too fine work or book print which is too small for comfort should be eliminated. There is some confusion about the desirable intensity of light for school work.† Glare is generally due to poor distribution of light rather than too much light. To prevent glare, light should be as diffuse as possible and not too close to the book or paper.

Proper placing of seats in relation to lighting in the room is necessary to prevent eye strain and its accompanying fatigue. Movable desks and chairs have an advantage over the stationary kind in that they can be moved about at the convenience of the pupils and teachers. The size and construction of the chairs and desks must be considered in relation to the size and body propor-

* For a review of research in school plants and equipment, see *Review of Educational Research*, 15: No. 1, 1945.

† For a discussion of school lighting, see Gibson.²⁸¹

Northern climates, this permits only part of the noon hour and week ends in direct enough sunlight to be of any benefit to the child's growth. For rural children who spend, in addition to these hours in school, one to one and one-half hours on busses, both morning and night, their only opportunity for outdoor play is the partial hour at noon and, when recess is offered, the extra half hour of the day thus provided. In some situations we might find a better school day, one which, when weather permits, provides a longer mid-day period for outdoor play than is traditional.

tions of the children using them. Seats which are too small or too large lead to bad postural habits and all the attending physical and psychological difficulties. Because children vary so in their size and build, adjustable desks and chairs are almost a necessity. Adjusting the chair to the child needs to be done more than once a year because of the occasional rapid growth in some children.

The school environment and its program should be so planned that everything contributes to the child's efficiency in learning and to his practice of desirable habits. At school the child should be gaining (1) knowledge about himself as a physical being and knowledge of his needs, and (2) experience in providing for those needs. By so doing, he will be ready to assume complete responsibility for himself when the time arrives.

Protection Against Disease. A school program which protects the child from diseases contributes to his well-being. The school can protect the child by encouraging immunization against communicable diseases, which can be controlled, by careful compliance with the Board of Health's regulations regarding all communicable diseases, and by early isolation of children who are not well. Early recognition of a sick child* and his removal from the group lessens the chance of spreading infection to others. Most schools have been making a fine effort to control communicable diseases such as diphtheria, smallpox, measles, etc., but they need to do more to check the spread of respiratory disturbances which are so prevalent in the school population. Spock⁹³⁸ says that respiratory infections, colds and sore throats cause about ten times as much loss of school work and general impairment of health as do other communicable diseases. The seriousness of colds and other respiratory infections is often overlooked. A cold may lead to an ear infection which may, in turn, affect the child's hearing. The school can encourage parents

* If a child has any of the following symptoms he should not be in school:

Red and running eyes

Running nose

Coughing and sneezing

Severe pain

Dizziness or faintness

Swelling about the neck

Sore throat

Unusual paleness

Earache or running ears

Feverish appearance

Rash

Nausea, vomiting or diarrhea

Tiredness, irritability or crossness, or other change in the child's usual behavior

(Taken from instructions for mothers concerning the spread of acute illness.²⁰²)

to keep children at home during the infective stage. It can also encourage, if not require, their teachers to remain away when suffering from a cold or sore throat.

Physical Examinations and Measurements. Periodic physical examinations, when adequate, locate weak and strong spots in the child's constitution. When these examinations are used as a basis for correction of defects or deficiencies and when they serve as an educational device to acquaint the child, parents and teachers with the health needs of the child, they become a vital part of the school program. Also, a periodic check of height and weight is valuable. By following the progress of a child's growth, the school and the home can watch for accelerations and decelerations in gains, plan the child's regimen accordingly, and look for contributing factors in his environment. In a good school program, the doctor and nurse become an integral part of the educational staff.*

The Teacher's Role. The teacher has an important role to play in protecting children's health. In the first place, she must be healthy herself. Her state of health influences her efficiency in her job. If she is harboring an infection which can be transmitted to others, she is endangering the health of those with whom she comes in contact. As we have said, cases of teachers being the source of tuberculous infection in a school are cited in the literature.⁴²⁵ For example, a man with unrecognized tuberculosis taught chemistry and led the band in one school. When the children in this school were given the Mantoux test,† 15.72 per cent of the children in the school had a positive reaction. For the boys in the band who had a closer contact with the teacher, the incidence of positive tests was 100 per cent greater than for the whole school population. This is not just one isolated case, for Lees⁶¹⁴ reports that 2.15 per cent of more than 6066 school teachers, having tuberculosis tests and X-ray examinations in several parts of the country, had a stage of tuberculosis requiring treatment. From these figures, he concludes that among the 871,607 teachers in our elementary and secondary schools in 1936, 18,739 teachers with tuberculosis were in active service. This statement was confirmed by Myers.⁶⁹⁹ A required periodic health examination which would include chest X-rays for all teachers would remove this "reservoir of infection." Other health hazards would be detected as well.

In addition to protecting her own health, the teacher can detect

* For further discussion of the role of the school physician, see a series of articles by Dr. Benjamin Spock in *Progressive Education*, Vol. 17, Nos. 1, 2, 3 and 4, 1940.

† The Mantoux test is a test to indicate tuberculosis infection. A positive Mantoux reaction means a tuberculosis infection, either active or inactive.

the early beginnings of sickness or nutritional deficiencies* provided she knows her children well, knows the early symptoms of illness and deficiencies and is a keen observer.

The teacher also has a role to play in helping the child to understand his physical needs. She can guide him in understanding the reasons for their importance and, through her attitudes toward eating, sleeping and all the other physical habits, she can encourage good attitudes in her children.

Contributions of the School Lunch. The school lunch has been demonstrated to be a very valuable part of a school's program since it can be not only a factor in promoting growth but also a learning experience.

Two reports by Tansil⁹⁸⁴ and Abbott et al.² give evidence that a good school lunch program can affect the growth and health of children. In an urban elementary school two groups of children of poor socio-economic status were observed:⁹⁸⁴ (1) a group of children who received a school lunch which supplied $\frac{1}{3}$ to $\frac{1}{2}$ the day's food requirement during the whole year, and (2) another group who had lunch of variable content at home. The children were measured at the beginning of the program and at the end of a three year or more period. At the beginning the children, who were to receive the lunch, averaged 1 to 2 centimeters shorter and 1 to 6 pounds lighter than the nonlunch group while at the end of the period they were equal in height or taller and equal in weight or heavier than the

* The Subcommittee on Medical Nutrition, Division of Medical Sciences of the National Research Council, has prepared a list of symptoms and signs of early nutritional deficiencies, classified according to persons capable of observing them.

Teachers and parents may observe the following symptoms and signs suggestive of early deficiency states:

Children

Lack of appetite
Failure to eat adequate breakfast
Failure to gain steadily in weight
Aversion to normal play
Chronic diarrhea
Pain on sitting or standing
Poor sleeping habits
Backwardness in school
Repeated respiratory infections
Abnormal intolerance of light (photophobia)
Abnormal discharge of tears
Bad posture
Sores at angles of mouth

Adolescents

Lack of appetite
Lassitude and chronic fatigue
Lack of mental application
Loss of weight
Loss of strength
History of sore mouth or tongue
Chronic diarrhea
Nervousness and irritability
Burning, prickling of skin
Abnormal intolerance of light
Burning or itching eyes
Abnormal discharge of tears
Muscle and joint pains (muscle cramp)
Sore, bleeding gums
Sores at corners of mouth

nonlunch group. When the children were grouped according to age, in three-fourths of these groups the school lunch children made larger gains in height and weight than did the nonlunch children.

Abbott et al. give evidence that a school lunch program can be effective in improving the nutritional status of children. In a rural district in Florida where nutritional problems were known to exist they made a five year study of the effect of a well-balanced school lunch upon the nutritional status of children. The authors concluded that "when adequately supervised, when planned to take care of known deficiencies, and when special attention and supplementary vitamins and minerals are given as necessary, the school lunch offers an effective means of raising the nutritional status of school children."²

Improvement in school attendance has been noticed in schools having a school lunch program. A study in Missouri²⁸³ shows that attendance improved more than 12 per cent in 10 schools which had school lunch programs, as compared with 10 schools which did not have such programs.

While many schools are serving adequate hot lunches, there is need for more and more schools to include this service in their program. There are vast numbers of children still underfed because their families are unable to purchase the necessary food. Teachers have reported stories about children who are underfed: the child who fainted in the school corridor (he had had no breakfast that morning and little food the day before); the children who carried empty pails to school and bravely pretended to their companions that they had a lunch. In a survey of what children eat at noon in the Washington public schools, one teacher commented, "No wonder some of these youngsters are not alert during the afternoon. Many of them eat no lunch at all, while others bring only candy, pop and ice cream."²⁸³ This latter statement indicates the need for educating children in food selection as well as making food available to those who are economically unable to purchase it.

As well as giving the child necessary nourishment, the school lunch can offer other advantages. It can extend the child's knowledge and liking for a variety of foods; it can help the child to establish standards for food and for table behavior by observation of others and by guidance from teachers. It can be the place where he practises that which he has learned about health in his various school experiences. It can also be a force in the community for the promotion of better food habits. For a school lunch to achieve these objectives it needs to be an excellent regimen well planned, well supervised, and made a part of the total school and community program. All school cafeterias do not, unfortunately, measure up

to these criteria and, therefore, contribute little to the real nutritional needs of the child and less to his education.

HOME AND SCHOOL MUST WORK TOGETHER FOR BEST RESULTS

Home-School Cooperation Depends upon Mutual Understanding. Home-school understanding and cooperation are generally accepted as more desirable than separate programs, even when both home and school programs are good. The school must remember, however, that not every parent sees eye to eye with the school or with every other parent in his ambitions for his child. As long as we remain a democracy the parent has a prior right over the State in determining many things about his child. No parent, under our law, may neglect a child's food, clothing or shelter, nor may he abuse his child or contribute to the child's delinquency. Nor may any parent keep a child out of school during school age; but the parental attitude toward the school may sabotage anything the school might try to do for the child.

Fortunately, however, only rare parents have any attitude but a constructive one toward their children, so that, given even a modicum of encouragement from the school, cooperation with the school is dependent only upon parental understanding of what the school is trying to do. Teachers and school supervisors must overcome their characteristic attitude that everything right with the child can be attributed to the efforts of the school, whereas everything wrong with him can be attributed to his parents. They must also overcome a characteristic tendency to feel that, in any difference of opinion between home and school, the school is always right whereas the parent is always wrong, or ignorant, or negligent. The home, on the other hand, must realize that the school serves many children and cannot always make adjustments to all the needs of any one child. Even crowded schools, however, under good principals and good teachers, manage to make fairly adequate adjustments to the needs of individual children.

Plans for home-school contacts should be a conscious part of the program of any school which even pretends to function as a promoter of development in children. Some communities now require at least one home visit each year to the home of each pupil. Occasional schools provide a time, even to dismissing early one day each week, or providing substitute teachers one-half day each week, when the regular classroom teacher can visit homes. A number of schools have frequent days when parents are scheduled by special individual invitation to spend the day in the school; sometimes they are invited to participate in the program.

School Report Cards as an Aspect of Home-School Cooperation. Parents should be kept informed of school regulations as well as of the individual progress of their own children. A formal report card, requiring the parents' signature, is the usual system, but the better schools are revising the traditional form of their report cards. An occasional outstanding school calls a parents' meeting from time to time to discuss such matters as the form of report the parents consider desirable and the teachers find practicable. Such use of parent-teacher meetings for active discussion of school policies, which so intimately concern both teachers and parents, injects a meaningfulness into school-parent clubs which such clubs usually lack at present. Some schools in the early primary grades have experimented with the abandonment of any form of formal report to parents. This seems to work in situations where parents understand the reasons for such a program, and where some personal conference with the parents at periodic intervals keeps the parents informed about the child's progress and adjustment. It fails wherever the move is made without sufficient understanding and support from the parents; and wherever the children and the parents are left "dangling," without any progress reports or information about whether the child is "making good," or not. Most parents are interested parents; they want their children to learn to adjust to the school job, since they realize that, in a certain sense, success with this job predicates success with "life" jobs; they want to cooperate with the school in seeing that the children do learn how to make this important adjustment. The school which fails to utilize this interest not only misses an excellent opportunity to serve its community, but it loses invaluable information about individual children which would make its work infinitely more efficient.*

* The National Society for the Study of Education Yearbook on Adolescence,⁷⁴⁰ published in 1944, declares that, "Undoubtedly there has been an overemphasis on tests and report cards of one kind or another" (p. 305). Some of the substitute or supplementary devices proposed for high school use, which have been used successfully in practical school situations are: (a) Individual interviews with the student. These reveal likes and dislikes, hopes and fears and the student's basic value patterns. Such interviews must be friendly, free and unhurried, and well-planned in advance.

(b) Observations of the students in both work and play school situations with brief notes made afterward for office records.

(c) Interest questionnaires for certain types of analyses.

(d) Autobiographies and diary records.

These must be asked for only when suitable teacher-pupil relationships have been established.

(e) Class discussion of carefully chosen topics relating to adolescent problems.

The School Curriculum Extended into the Home. A proposal made by the Committee on Workshops of the Progressive Education Association is the use of home projects as a means of improving home-school understanding as well as a means for teaching young people family relations. The projects must, however, be carefully chosen and so set up as to increase home cooperation rather than to arouse antagonism. A boy should not be led to quarrel with the judgment of his father over the exactly "correct" use of tools because the shop teacher has been oversteretyped in his instruction. A girl who learns to look down upon the old-fashioned or "unscientific" methods of her mother's housekeeping, instead of to cooperate in the general task of household management, has not only been taught meaningless technics, but has also been encouraged to destroy the only foundation upon which good homemaking can possibly exist, viz., harmony among the family members. School projects sent into the home must always have in mind a sympathetic understanding of the standards and technics of the individual homes and must encourage, rather than discourage, parent-child harmony.*

OTHER AGENCIES AND EXPERIENCES AFFECTING THE LIVES OF CHILDREN

Many Other Agencies and Experiences Also Teach. As we have suggested elsewhere some teachers and school administrators are inclined to limit their thinking about developing citizenship in children to the role played by the school. They tend to neglect the nonschool influences which operate during school age and which are often far more potent than the school in forming habits and attitudes. Nonschool agencies always did, and still do, have a vital function to play in the education of children for life.

That the school is only one of the community agencies which teach citizenship, or which affect the lives of children, both while

* Excellent suggestions for the building of school programs in personal-social development, in home-making and family relations courses, and in social science courses are contained in the report of the Committee on Workshops of the Progressive Education Association, in the publications of the National Council of Parent Education, the Federal Bureau of Home Economics, in the reports on Adolescent Study of the Institute of Child Welfare of the University of California, and other publications of the Progressive Education Association in addition to those cited.

- (f) Staff conferences about individual students.
- (g) Conferences with parents in which the parent becomes an important source of information in which the counselor helps to interpret the adolescent to his parent.
- (h) Observations of home conditions.
- (i) Surveys of out-of-school activities.

they attend school and after they leave school, becomes evident when we consider the number of children who pass beyond the influence of the school at a comparatively early stage in their development toward mature adulthood.*

We may gain a partial insight into the number of agencies other than public schools which touch the lives of children when we consider the religious, social, welfare, recreational and other agencies, federal, state and local, which exist for the welfare of children: churches, Sunday schools, young people's organizations, settlement houses, hospital clinics, private doctors and hospitals, boards of health, visiting and public health nurses, visiting housekeepers, public welfare organizations, children's aid and placing societies, orphanages, juvenile courts and detention homes, public and private guidance clinics, public libraries, art museums, science museums, children's concerts, the radio, the newspapers and comic strips, newsstands with magazines good and pernicious, public and private recreational centers, camps, scouts, Y.M.C.A. and Y.W.C.A.'s and similar organizations. These are only some of the agencies in urban centers. Rural areas have 4-H clubs, rural youth organizations, church organizations, county health and welfare, and other social agencies.

Many of these agencies prove, upon analysis, to be concerned with the care of children in the bottom third of our population—the ill-fed, ill-clothed, ill-housed third of our population. Many are concerned with the prevention or correction of delinquency or other problem behavior. Some are caring for children from broken homes; some are nursing sick children back to physical health. A few, working beside the school, the church and the home, are broadening children's horizons, developing their talents and appreciations, and providing enrichments for body and mind. Some, like the radio, movies, the funnies, are both destructive and constructive, depending upon the quality of what they offer; but, whatever the offering, these three influences have multiplied their power over children in a geometric ratio in recent years.

CHURCH

As we proceed further with the constructive forces in the lives of children, we find the church the largest organization, besides the school, which attempts to guide standards and attitudes of children.

* This drift away from school has been changed by the influx into our high schools and colleges of war veterans financed by the "G. I. Bill of Rights." If we may judge by the experience of the first world war, enrollments in institutions of higher learning will not return to prewar levels when the last of the "G. I.'s" have finished their work.

Whereas medicine, public health, recreational programs and the like take primary responsibility for the physical development of children, and whereas schools take primary responsibility for intellectual development, the church is regarded as the organized agency whose chief responsibility it is to oversee the spiritual development of children. There are many academic schools which exist under the control of the Church rather than of the State. It is also true that nearly all schools take some responsibility for physical and for character development as well as for intellectual growth. Of course, as we have said repeatedly, the family is of all agencies the most influential and responsible for the physical, informal intellectual and spiritual development of individual children.

Many Families Leave All Formal Spiritual Training to the Church. However, most modern families do little about formal spiritual training of children, tending to turn that responsibility over to the church if they give it any attention at all. Family worship is no longer widespread in current families. Many so-called "modern" families find themselves embarrassed and awkward at any mention of God or of cosmic or mystical forces. Fortunately for the development of the children in these homes, there is usually a well-defined and clearly practised "social philosophy" and a high sense of "ethics." This being true, the children gain in these homes fairly clear beginnings in ethical practices and fairly adequate social viewpoints. They do not, however, as a rule, have any help in the verbalization, and hence clarification, even of such principles as the parents themselves verbalize. They receive little or nothing of the inheritance of the racial tradition or mores, as represented in Bible stories or stories of Church saints. They are likely to grow up with the conception that there is no wisdom or strength in the universe beyond themselves, or, at least, beyond mankind. Many such people find themselves getting along quite smoothly until some crisis of life arises. It is in the crises that most people find themselves in need of explanations of life and death, and of a Source of Strength beyond the human. They have none of the solutions for life crises which the race has accumulated and which it passes on through religious tradition. Lacking this, they have deficient strength with which to meet major life crises.

Sensing this need for fortification in periods of crisis, sometimes sensing, even though they do not have it themselves, that there is some viewpoint or contact which can enrich daily living, many parents who do not themselves belong to or attend church send their children to Sunday school. All parents who find strength in religious practices wish to have their children find the same strength. There is, therefore, a fairly high proportion of children

who are at least exposed to the influence of the Church. School teachers cannot hope to understand their children unless they know something of what form of religious experience these children are having. Occasionally, children are having highly emotional religious experiences (this is particularly likely to happen to Negro children) which command their energy in such a way as to color seriously the nature of their school work. Many children from five years up are troubled by thoughts of death, by a deep sense of guilt over some object which they have stolen, or some sex thought or act which they have experienced.

Churches Do Not Always Use Good Educational Methods.

The religious concepts or ideas which many children have are confused and distorted. Unfortunately, these distortions are not often evident to the adult who has unwittingly instilled these ideas. Only recently have the churches themselves begun to study how children translate church teachings. Sunday schools have tended to preserve traditional teaching procedures with the result that church-school teaching has lagged far behind academic school teaching in educational method and understanding of child psychology.

Hartshorne and Lotz⁴⁴ analyzed one hundred of the better church schools in the United States. They took stenographic records of the proceedings and analyzed these. They report that the class-work of these one hundred teachers was almost wholly factual, dominated by formal rote learning and dogmatic instruction. Only 20 per cent of these teachers made any attempt to measure their results. The use of authoritative instruction offered no opportunity for the children to accept what was being taught them on any but a passive basis. Faith was depended upon to supplant reason.

As an illustration of what happens to many children's concepts of Jesus, Murphy says of the children whom she observed closely:

For the most part, these children do not hear much about Jesus; and any child who does hear of him is apt to learn of him, not as an ideal grown-up who helped people, but as a little baby whose mother put him in a straw thing in a barn instead of a crib, and to whom queer-looking men in striped gowns brought presents no baby could use. They learn, too, that there was a bad king, with a ferocious face, of whom the baby's mother was afraid, so that she had to take him a long way from home, riding on an animal that is not seen in the city, nor even in the zoo.⁷²⁴

That there is need to teach childhood religious concepts in such a manner that they become a rational as well as an emotional possession seems evidenced by a study of college students made by Brown¹⁴⁶ in which the ratio of Protestants, Jews and Catholics

ran two, two, one. Eighty-nine per cent of these young people had changed their childhood concepts of God; 96 per cent had experienced conflict in their own minds about childhood religious conceptions, but 7 per cent had preserved the childhood ideals. The first doubt for many of these young people is traceable to the death of someone whom they considered useful and necessary, and which led them to question, "Why should a just God take away this one and leave so many useless people alive?" Some questions arose when disaster befell someone whom they regarded as not deserving it, whereas they felt that all about them wickedness went unpunished. These young people were still laboring under the idea of an irrational, whimsical god, and needed to come into possession of a far wider concept of Life and Universal Law. Prayers which are not immediately answered arouse doubt in the person who is so limited in his conception as to think that it should not rain on a given day because he wants to go to a picnic. That ten thousand farmers may be praying for rain never occurs to him.

One of the best writers on religious education for children, Ligon,^{* 633} says that healthy-minded religion should help children to work out the following problems at the following ages:

Two to four:	Confidence in people and things
Four to six:	Cooperation
Six to eight:	Sensitiveness to criticism
Eight to ten:	Fear of failure
Ten to twelve:	Positive attitude toward goodness
Twelve to fourteen:	Venturesomeness in work

He does not wish us to understand that these are the only problems in which religious education should help children, since he is acutely aware of the need of introducing children to the concept of God at an early age, but he does wish us to understand that words and stories alone are not enough in the early education of children. We must see that they *experience* basic religious conceptions in situations so life-like that the necessary lessons are learned and desirable attitudes developed.

If Brown's group, mentioned above, proves a fairly adequate sample of young people, and clinical experience indicates that it is, then it becomes important to see that religious concepts are taught in childhood in such a way that they can stand the test of modifications which experience must give them. Only in this way can religious concepts keep abreast of the growing life experience of the individual. This does not mean "half-baked" or half-formulated ideas, but rather, that God should not take on anthropomorphic

* Lecture before the American Psychological Association in September, 1941.

outlines, being "an old man with a white beard, sitting on a throne," passing judgment on each good and each bad act, handing out rewards and punishments by whim, or upon being bribed or wheedled. This is actually the concept which formalized church-school teaching leaves with many children.* That God's rewards and punishments follow orderly law, or that God is a Spirit far more omniscient and omnipresent than is possible for a person sitting on a throne in the sky seems impossible for many young people trained on dogmatic parrotings of Bible quotations which are beyond their comprehension as children.

It is because of this type of meaningless teaching that many children come to hate Sunday school and to put up a weekly battle about going. Part of the difficulty is due to rather haphazard teaching by volunteer teachers who have no special training. Many of the more modern Sunday schools such as the Old South Church in Boston are employing trained teachers and are offering freer programs, with dramatizations of Bible stories and other group socialized experiences which give children not only the inheritance of a knowledge of the Bible, but also a practical experience in cooperation and teamwork, in "Love thy neighbor as thyself." Young people's groups are offering many types of activity, not only as social experiences for the young people themselves, but as services of the young people's groups to the church and to the wider community.

Some Churches Are Using Modern Methods with Excellent Results. The attitude of the children in one small city church† was completely changed in two months by a new pastor. Instead of having to "hound" the children into Sunday school, within two months this pastor had his own children not only attending enthusiastically, but also bringing in their friends and neighbors. He accomplished this mainly by conducting a separate high school service which duplicated the adult morning service, except that the young people themselves organized into a church with deacons and elders, served as ushers, choir, verse readers, collection takers, etc. He also conducted, paralleling the adult service in time, a children's church in a small adjoining chapel in which the children were ushers, verse readers, choir, pianist and collection takers. Only one adult was present at these children's services. This was a mother or father who told a story in place of the adult sermon. This proved an excellent idea for stimulating not only active interest but for establishing a habit of participation which, at least

* Based upon several years of church-school samplings made by the Merrill-Palmer School in religious education experiments.

† New England Congregational Church, Aurora, Illinois.

as long as this particular experiment has lasted, has led into continued interest and participation through adolescence and into adulthood.

This seems a hopeful approach to answering the criticism of the church-school made by Hartshorne and May⁴⁴⁵ after a careful study of the situation. They say that knowledge, *per se*, does not assure appropriate conduct, and that attendance at the usual church-school does not affect the behavior of the child. Hartshorne and Lotz⁴⁴⁴ also remark about the lack of concern for outside groups evidenced in some church schools. Concern with saving one's own soul is probably a limiting experience, sociologically, unless there is envisaged, as part of that concern, a regard for the welfare of others. There seems, however, an increasing understanding on the part of religious leaders that religion can become functional and vital to children and young people only when the precepts are carried into practice, and that it is part of the business of church-schools to see that this happens both in the family life of the child and in his relations with the wider community.^{124, 214, 916, 1055}

Church-school projects which cooperate with other agencies in the community are doubly useful in teaching teamwork and group spirit in a world in which cooperative work in the home is diminishing. In the old days of weaving, baking, washing and cobbling in the home, parents and children worked together on projects which were clearly necessary for the well-being of all. Few of these chores remain in the modern home to teach such cooperative production for the good of all. Schools help this somewhat by the cooperative projects which they create. However, these projects are usually centered around the children themselves, promoting the learning or the housekeeping or the play interests of the participants. Sacrifice for an idea, or for people not in your own immediate group (and, therefore, from which you do not yourself, as a member of the group, reap benefit) is not frequent in the life of the week-day school. Teaching of this wider sacrifice seems the realm of the church-school.

Example of Church Attendance by Children's Families Is Important. Many families cooperate with their children in church and Sunday school attendance, but the majority do not. A student of Brown¹⁴⁶ studied attendance in his own church and found that, although 75 per cent of the married adults in this group had had family worship in their own childhood homes, only 8 per cent continued the practice in their own homes after marriage. Seventy-eight per cent of these people reported attending church with their parents in childhood, but only 34 per cent now attend with their own children. In a wider survey of an entire community,

another study³¹¹ reports that when parents themselves go to Sunday school, 92 per cent of the children also go, but that when the parents do not go, only 28 per cent of the children attend. The business of better religious education, then, is not the concern of the church alone. It is a responsibility of the families as well.

SUMMER CAMPS

From 1900 to 1941 the spread of summer camps for boys and girls was rapid and steady. Nearly every state now boasts dozens, ranging all the way from the free camps for underprivileged children, supported by newspapers, Rotary clubs and Community Chests, to the expensive private camps, which charge \$75.00 to \$100.00 per week and provide every sport and living luxury. Children of all ages, from two-year-olds through adolescents, attend. Preschool camps are, however, a fairly recent development.

There are not only twenty-four-hour-a-day camps, but innumerable day camps, or playgroups where supervised recreation is the program.

Summer play schools have, since World War I, demonstrated the feasibility of group programs for children, which offer excellent physical care and informal educational opportunities to children whose summers would otherwise be spent in crowded city slum homes and on the streets. New York City has led in these programs, which are usually centered around settlement houses. Tau Beta Settlement House in Hamtramck, Michigan (a suburb surrounded by Detroit) has maintained such a program since 1935.* These programs provide a hot noon-day meal, carefully planned for nutritional value, mid-morning and mid-afternoon milk or fruit juices. Daily naps and showers are gladly accepted by children from hot, overcrowded homes where no one goes to bed until the coolness of late evening hours has tempered the heat of the rooms, and where baths are not easy to get. Creative play, arts and crafts opportunities, story and reading activities all help to provide a well-balanced day. Children characteristically gain weight under these programs, returning to academic schools in the fall in far better physical and psychological condition than would otherwise be

* Both this program and the New York Summer Play School Association have good sound movies to demonstrate their activities: available by contacting—

- (1) Play School Association, Inc., 1841 Broadway, New York City. Sound film 16 mm., runs for 30 minutes.
- (2) Photographic Division of Ford Motor Company, Dearborn, Michigan. Film is 16 mm., runs for twenty-eight minutes. Title is "Sound Film of Tau Beta Summer Play School, 1940."

Both available for postage and insurance.

possible. For the numberless children who cannot leave crowded cities for summer camps, these play school projects provide a type of care which is invaluable for the children's growth and well-being.

One of the greatest contributions of these play schools and of nursery schools to education in general lies in their recognition of the importance of parent education and the cultivation of parental cooperation. Talking over with parents physical examinations, daily schedules, food values, the program of rest in relation to the children's growth and well-being often leads to talk about children's individual personalities and adult-child relationships. Visits by parents to the schools, planned parental participation in the school day, invitations to parents to "come to lunch with us," to help plan and conduct trips, to drop in on extemporaneous plays and other story-hour projects all help to make the parent feel at ease in the school, to give an opportunity for informal, friendly teacher-to-parent and parent-to-teacher education. It helps the school to adjust the day's program to the needs of each child as determined by the exigencies of his home life, and also helps parents to plan such adjustments as are feasible in the home program to fit around the school activities. Thus home and school work together, day by day, to achieve a successful summer of growth and well-being for the children. There is much of the home-school relationship in these programs which could, and should, be adopted in winter school programs to promote a genuine improvement in the total growth and well-being of children.

Camp programs range all the way from a detailed scheduling of every half-hour of the day to informal play-and-do-as-you-please programs. In view of the rigid scheduling demands made upon most children during the school year, there is a desirable tendency in the direction of freer programs in the more modern camps.

Camps exert a considerable influence upon the life of the modern city child.²⁰ Probably their greatest contribution, if they are well run, is physical. The sunshine and out-of-door play, the healthy appetite for meals, and the regular hours of sleep often make all the difference in a child's physical stamina for the following winter. Many children lose some actual weight in an active summer of camp life, only to gain much more than the amount lost as soon as they get back home. Many children, however, gain steadily after the first week of adjustment; particularly do underprivileged children gain in camp. Unfortunately, many of the undernourished children from crowded city slums which offer neither play space nor rest, are the children who get only ten days or two weeks in camp. The more privileged children who have play space and plenty of food at home, and many of whom have, in addition, a "cottage

on the lake," are the children who get six or eight weeks in camp. Camp also makes a contribution to most children's physical skills. Riding, hiking, swimming, and skill games widen the repertory of physical skills, and sharpen interest in physical play. It trains the child for life by training his body, increasing his love of exercise, and developing his self-confidence. As the child learns to overcome physical fears in swimming, riding, and over-night hikes, he learns much about overcoming psychological fears. Courage can, perhaps, be defined as that which one possesses when one has overcome fear. Thus, in increasing command over the body and in overcoming fear, the development of physical skills makes an important contribution to mental health.

Camps also exert a strong influence on social adjustment and moral values. Because children live for twenty-four hours under the influence of camp counsellors and are required, not only in play but also at meals and during rest and sleep hours, to adjust to other children, progress in social adjustment is often rapid. Camp promotes the weaning from dependence upon parents which is an important part of total social growth. Close living with people other than the family teaches self-control and consideration for others as they cannot be taught at home. Parents, by virtue of the fact that they are parents, are always *with* a child and *behind* him, no matter how badly he behaves. People outside of the family have no such obligation and can withdraw support or companionship whenever the personal relationship becomes inconvenient or disagreeable. Many children find self-discipline in camp for the first time, and discover that the only way to get along with others is to temper what one pleases to do with consideration for the rights and wishes of others.

Another contribution of camps, as well as of good schools, lies in teaching children joy in work. Satisfaction in a job well done, the ability to put forth continuous effort in work and to find creativity in doing so is one of the basic, unshakable foundation stones of the truly healthy personality. In camp, the summer of constant effort may be crowned by the ability to swim 50 yards. Housekeeping, waiting table, and other "work" can become fun as the child does cabin duties in a group and as preliminary to hours on the beach.

Thus work becomes fun, play aims at a goal of perfection, and a "passion for excellence"* is achieved for many children who would not develop it otherwise.

* L. P. Jacks' phrase. Mr. Jacks is a leader in the camping and recreation movement.

A CASE ILLUSTRATING INTERAGENCY COOPERATION

The following letter from a hospital psychological clinic to a school nurse indicates the type of information which can be gained in one clinic contact and one home visit by the clinical social worker. This child was referred to a children's hospital by the school nurse who worked in a school district where no medical or psychological examination is provided by the school. The nurse felt that an effort should be made to discover why Evelyn was having trouble with her teachers. In the hospital where the clinic was conducted medical examinations were preliminary to referral to the psychological clinic. The distance from the clinic was too great to permit a consistent follow-up by the clinic personnel. Unfortunately, Evelyn's school system had no special classes for mentally retarded children. It was necessary, then, that in spite of her mental age she should find whatever academic adjustment possible. She had failed often enough that at ten years ten months she was just entering the first half of the fourth grade when the case came to the attention of the school nurse.

The letter also demonstrates the kind of interagency cooperation which is possible in the care of children.*

Dear Miss M—:

As our hospital social worker has perhaps informed you, we saw Evelyn F. in our Out-Patient Clinic at the Children's Hospital yesterday. We gave her an intelligence test. At a chronological age of 10 years 10 months she scored on a Revised Stanford-Binet test 7 years 6 months, giving her an I.Q. of 69. Her medical examination was negative except for evidence of malnutrition and for the need of a check on her eyes.

Evelyn does not present a very promising picture as nearly as I can see. She is one of those border line intelligences which always find it difficult to get on in school. Complicating this there is not only a very bad dietary condition, but also a number of fears which make her cling to her mother or any available adult. Since it is so long a distance for the mother to come in and since correction of this sort of thing takes a considerable length of time, I am wondering if it would not be possible for you to carry on for us.

The mother apparently has very little understanding of correct food. To provide adequate food on the budget available will take a good deal of help. I also gather that even when the right foods are available Evelyn refuses to eat them. According to their report the child's diet yesterday was as follows:

Breakfast: 1 cup of coffee, one piece of bread

Luncheon: peanut butter sandwich and a piece of pie

Supper: mashed potatoes, bread, tomato preserves

* The National Society for the Study of Education Forty-third Yearbook on Adolescence⁷⁰ contains an excellent discussion of the inter-relation between the school and other community agencies. (p. 327)

It is our feeling that a higher intake of calcium and vitamins might help to make her somewhat less distractable in attention and less flighty.

The essential need psychologically is for her to adopt a more mature role—learning to bathe and dress herself, learning not to run to her mother every few minutes for physical attention, learning even to participate in some of the household activities. If you could help the mother and the child to get her to assume a role more equal to her mental age and less like that of a two- or three-year-old child, it would be of some help.

There is a possibility that some of Evelyn's insecurity is traceable to the fact that she does not understand that the present father is a stepfather rather than her own father. I asked her mother to clear this up. There seems some confusion between the record that we had and the mother's own statement as to whether Evelyn is an illegitimate child. If you have any opportunity to check this and find that she is illegitimate it may be possible that the mother's own attitude toward this would convey some insecurity to the child.

There seems evidence, as we mentioned above, that she needs eye correction. We have made an appointment for this for next Wednesday. I understand that our social worker will get in touch with you about providing for her glasses.

The child is to return to Dr. N. at the Medical Clinic in four months. If we can be of further service please call upon us.

Sincerely yours,

This case was followed through by the school nurse who was able to get good cooperation from the mother. Evelyn proved to be an illegitimate child who had been legally adopted by her stepfather. The mother seemed on the whole to accept this situation without conflict, although she overprotected Evelyn in an attempt "to make it up to her" for not giving her a legitimate own father. She realized that overprotection was a handicap to the child and soon succeeded in helping Evelyn grow up to her mental age. As this occurred Evelyn became more able to give attention in school and in other ways to benefit from the school program. A better balanced diet gave her more physical vigor. This, combined with her more grown up behavior, improved her play relationships with other children. Thus we see home-school cooperation and interagency cooperation solving a problem of growth and adjustment as nearly as it was possible to do in such a case.

QUESTIONS FOR CLASS STUDY

- I. A. Invite into your class two or three successful mothers of school-age children. Encourage them to discuss:
 1. What happens to their children before they get off to school in the morning?
 2. What happens to them during the noon hour?

3. What happens to them after school and until they go to bed?
 4. What happens to them over week ends?
 5. How much work or home responsibility does each of their children carry?
 6. How many clubs do their children belong to? How many special lessons do they take?
 7. How much do they listen to the radio? To what programs? With what resulting effect? (Preserve this information for discussion of Chapter VI.)
 8. How often do they go to the movies? What kind of movies? With what resulting effect? (Preserve this information for discussion of Chapter VI.)
 9. How many of their children go to church school? Receive religious instruction at home?
 10. How much spending money or allowance does each child have? What does he do with it?
 11. What hobbies does each child have?
 12. What part have the fathers been able to play in the care and guidance of these children?
 13. What occasions arise for discipline? What kind of discipline seems to work best?
 14. Discuss with these mothers some of the recommendations for routines and discipline found in your readings. How practical do they prove to be?
- I. B. If the mothers cannot visit your class, have two or three members of the class visit one home each and obtain the same information. Bring it to class for discussion.
- II. Contrast the following two school schedules for "fit" to children's growth in your community. Consider the job of getting the school work done, sunshine hours, frequency of bad weather, number of children who go home for lunch, age of children involved, predominant working hours of fathers (as this relates to family meal hours and bed-time) and other relevant factors.

School A (Elementary)	School B (Elementary)
8:45 School opens	8:30 School opens
9:00 Classes begin	8:45 Classes begin
10:30 Recess—Mid-morning milk or fruit juice or cracker	12:00 Dismissal
10:45 Classes resume	1:00 Classes resume
12:00 Dismissal	2:30 Recess
1:30 Classes resume	2:45 Classes resume
2:30 Recess (if good weather)	4:00 Dismissal
2:45 Classes resume	
3:30 Dismissal	

III. Contrast the following schedules for high school pupils:

Child X in School C
(Senior high school)

8:15 English
9:00 Gym
9:45 Study hour
10:30 Shop
11:15 Mathematics
12:00 Spanish
12:45 History
1:30 Lunch
2:00 Study hour
2:45 Dismissal

Child Y in School D
(Senior high school)

8:45 Mathematics
9:30 Spanish
10:15 Study
11:00 History
11:45 Lunch
12:30 Shop
1:15 English
2:00 Study hour
2:45 Gym
3:30 Dismissal

IV. Recall your own childhood. Did the school you attended make any genuine attempt to win the good will, understanding and cooperation of your parents? If so, with what result? If not, why not? Outline a practical home-school program which would help children both at school and outside of school.

V. Recall the Sunday school you attended as a child. Plan a desirable Sunday school program for that church which would meet the spiritual growth needs of the children who attend. How would you select leaders who understand the needs and interests of children of various ages? What equipment and program would be feasible in that church?

VI. Do any of the agencies in your community sponsor camps? What type of children do they serve? If your community does not sponsor children's camps, either get a copy of the American Camping Magazine or write to the American Camping Association (343 Dearborn St., Chicago, Ill.) for catalogues of several different types of camps. Discuss the programs of these camps for adequate fit to the ages and backgrounds of the children served. Discuss any experiences you have had with children's camps.

VII. Read Hymes on the Selected Readings list. Discuss any war children (born between 1941 and 1945) whose fathers were in military service. Do they show the signs of disturbance described by Hymes? If so, why? If not, why not?

VIII. Read the American Council of Education book on the Selected Reading list and summarize the specific suggestions it offers teachers for understanding children.

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6. INFLUENCES ON GROWTH:

Further Community Factors

EFFECT OF THE CULTURE

As subtle as the influence of the home, and as ever-present, is the influence of the culture in which the child lives. As a Hindu, or a Chinese, or a Frenchman, or a New Englander, a Western white, an Indian, or a Southern negro, certain expectations and patterns of what one does or does not do surround one from birth. These expectations and patterns may take the form of modifications of the physical form, like binding of the girl's feet in the older Chinese culture, or stretching the neck in certain African tribes. In the average American group, for example, it consists of a certain athletic development for boys with emphasis upon height and musculature, and of a certain emphasis upon feminine curves for girls. The short, undermuscle boy feels the impact of his undesirability as does the lanky, uncurved girl.

The culture usually also attempts to mold not only physique but also habits, character and personality.³⁴⁰ Five meals a day in some parts of Europe, three in the United States; certain diets for Italians, others for Frenchmen are all typical in their respective locales. In the development of specific habits, our middle class American way of life

Includes a deep respect for cleanliness, for property, for sexual control, and for rapid achievement. Children resist these values. Therefore our training levies heavy demands upon the young child*.²⁵³

Every culture, for example, makes demands of some sort upon very young children in exacting control of eliminative processes. Times, places and circumstances regarded as proper for elimination differ. Important in child training is the age at which control of elimination is expected. We have some evidence, for example, that the age at which our American children have been trained for the toilet upon the advice of most pediatricians and parent-educators during the past twenty years has been somewhat too young.

* See later (p. 439) for more about the effect of culture on the development of personality.

As children grow older, every culture places upon them expectation of self-care in various degrees and at various ages, of participation in the life of the community, of economic independence or contribution to the group life, of marriage and child rearing. Too often these expectations are imposed regardless of the individual child's ability or constitutional make-up. Until recently, for example, the United States has had no place for any but the muscular, aggressive male. The contribution of thinkers, artists and other introverts was not utilized as in Europe. For this reason, much art and literature, and even, until the turn of the century, much science was lost in the welter of aggressive action which dominated the cultural expectation for boys. More than this, great unhappiness and maladjustment existed for the "misfits." Since the beginning of the acceptance of art and literature, and of scientific or scholarly pursuits, this particular loss and unhappiness has decreased. But today's American culture has its own emphases, many of which still ignore individual equipment or functioning. Until we can come to recognize each child's peculiar capacities and resistances, until we can develop a culture of understanding and tolerance, we shall go on losing socially valuable output and creating socially destructive unhappiness and maladjustment.

Within the framework of our characteristic "American" culture in the United States* we find that the demands of the social group upon the child vary from the family to the gang (the standards of the gang often coming into conflict with those of the family), and from the gang to the standards of boy-girl or other behavior in adolescents. Murphy⁷²³ gives a clear discussion of the meaning of these changes in standards of behavior or group mores. Children learn one pattern of behavior and one set of standards for moral and ethical beliefs in the home. These must be adjusted later to those of the gang and neighborhood; and these, in turn, must be worked out to fit the demands of intimate, personal relationships in adolescence.

Even within the family, the child finds that he must adjust to differing standards as he grows, since one type of behavior will be expected at one age, another at a later age. For example, nearly every infant, whether he was wanted before his birth or not, is soon loved by his parents. He experiences a period when he is the adored center of at least his mother's universe. At eighteen months to two years he becomes "the run-about child," getting under foot when his mother works, getting into everything, asserting his own ego in temper-tantrums. He experiences a period when discipline, thwarting and restrictions are inevitable, a period when even the

* See Davis and Havighurst²⁵³ for excellent case studies.

calmest adult finds himself "on edge" at times. Ordinarily, there will be many periods still when the child is thought "cute" and receives admiration and affection, but the conflict of being in the way and being adored in turn is present for most children. This is heightened if a new baby is on the way or already present, in which case the child sometimes experiences a strong feeling of being in the way and a nuisance in the household. Relief from this feeling comes when he is out of doors and hence no longer under foot. This is not at all destructive in his growth, since to be too much adored in the family circle sometimes means that the child cannot leave it; to be somewhat unwanted, at least at times, gives one the courage to seek satisfaction outside.

Upon entrance to school, a number of things may happen. If the child is quick to smile, to obey orders, and to learn school routines, he often experiences a renewal of mothering affection from his kindergarten or first grade teacher. If he is troublesome to have in the group of children, slow to fit into routine and not particularly lovable, he may exact rebuke and a further sense of isolation from the adult world. In any case, the majority of children do not stay lovable in the eyes of most teachers very long. The result is often scoldings from teacher and principal, rebukes from neighbors and sometimes even from the police, warnings from the parents to keep out of trouble, "or else." Some children, in spite of competition with other children in the family for a place in the sun, feel through all of this a secure affection from their parents, and hence find these conflicts with the world not too unbearable. Others, failing to feel confidence in their place in the family, find "belongingness" only in the approval of the gang. This may lead to a bid for status in the gang either on the basis of bravado and "wickedness" or on the basis of constructive accomplishments as a good ball player or a champion model-airplane builder. The good of society and the mental health of the child lead us to hope he will make the latter rather than the former adjustment.

In any case, he reaches adolescence. Here he almost inevitably goes through a period of ridicule from adults for his awkwardness; he is expected to be grown up in judgment and behavior, yet is denied what, in his eyes at least, look like grown up privileges of independence from supervision. Parents and teachers make "last minute gestures toward control"⁷²³ which sometimes take on the aspect of desperate attempts to teach all the lessons of self-control and good judgment which the adults fear were not learned earlier. Conflict with adult authority is often even more acute than it was between two and four years. However, the young person may be able to save his face with the adults if he gets good enough school

grades, or is prominent enough in school activities, especially if the activity is football. There is a diminishing group of parents with whom the most effective "face-saver" is getting a job and paying board at home. Meanwhile, the adolescent's own inner urges take him into the realm of socializing, shopping-for-mate activities which prove in direct conflict with the activities which serve as good "face-savers" with the adults.

Murphy summarizes these demands of the culture as follows:

1. He is expected to be cute and beautiful, the idol of the family, from birth to two or three.
2. He is expected to keep out from underfoot and give the adults a chance to take care of the new baby (this experience may come at any time from two to six in most families).
3. He is expected to sit still in school and learn to read and do numbers (beginning elementary school).
4. By his own age group he is expected to prove that he is male and is independent of the grown-ups.
5. The girls expect him to learn to dance and look nice and drive a car (early adolescence).
6. The school expects him to throw all his energy into winning for the ——— High School. His parents expect him to get the best marks.
7. He is expected to find a job, either to support himself or to contribute to the expenses of college or vocational school in order to prepare for a job later.
8. He is expected by his bride to love her day and night, and by the world to concentrate his energy on "making good."

This brief list is intended not to be inclusive, but merely to suggest the variety of demands imposed upon the growing young person by a society which progressively asks him to be the center of attention, to get out of the way, to accept absolute authority, to show his independence of authority, to sacrifice himself for the larger group, to be self-sustaining and independent, to love passionately and to achieve financial success.*⁷²³

It seems clear that, within the family or in the school and community, the child's behavior and attitudes, standards and beliefs are constantly being moulded in directions dictated by the particular culture in which he grows up. Let us examine further some of the specific influences in the community which mould his growth as a community member.

SOCIO-ECONOMIC STATUS

Effect of Socio-economic Status on Physical Health and Growth. Many studies† point to the fact that material wellbeing

* For other conflicts see Figure 22.

† Summarization Sanders.⁸⁵⁵

affects physical development. Investigators have accumulated evidence by comparing private and public school children³ by grouping children according to the family income or according to the occupation of the parents. Still other investigators have studied the effect of changing the environment. Meredith⁶⁹³ has made a critical study of the evidence presented in American studies for boys nine and fourteen years old. Using three studies, he concluded that white boys of the professional and major managerial classes are taller and heavier than those of the unskilled and semi-skilled classes. The difference in average stature between the two classes ranged from .5 of an inch to 1.2 inches; the difference in average weight ranged from 1.1 pounds to 3.6 pounds. As Meredith states, the explanation of differences in height and weight between different socio-economic groups is not known, but diet, housing conditions, health practices, occupational demands and selective mating are possible contributing factors. Sexual maturing as indicated by menarche occurs earlier in better than in poorer socio-economic levels.⁷⁰²

Hardy et al.,⁴³² in a study of the health records of 6,438 children, representing widely different income levels* and various types of community areas in Chicago, found an association of low income with poor physical conditions. More dental care, as judged by the physician, was needed in the lower income class. The physician considered the children from the lower economic level less robust than those from the other groups. Ratings, indicative of excellent health, were three times as frequent at the economically independent level as at the relief level. Underweight, as judged by a comparison with Baldwin-Woods standards was noted more frequently in the low income class.

There is a definite relationship between low incomes and subcritical malnutrition. Roberts^{838a} gives poverty as one of the underlying causes of malnutrition and cites evidence to prove that when families have inadequate income they are unable to give their children proper food. A study of urban grade school children in Pennsylvania⁶³⁹ revealed better general physical ratings, better bone development and better reserves of Vitamin A in the upper income group, though it found no differences in weight status, dental scores, or in hemoglobin. Another study of high school students in New York City¹⁰⁵⁴ found indications of Vitamin A, C,

* Economic levels in this study were divided into three groups: (1) *Economically independent* (stable type of occupation, receiving no financial assistance, majority of reported incomes \$2,000 to \$4,000); (2) *marginal* (W.P.A. or had been on relief some time during the last two years); (3) *relief* (receiving financial assistance).

and riboflavin deficiencies more frequently in lower than in higher income levels.

There tends to be more illness among families with low incomes. Boudreau¹¹⁶ states that the tuberculosis death rate is seven times greater among unskilled laborers than among professional men. In 1931 the infant death rate in families with an income of less than \$500 in Denver was more than five times greater than that in families with an income greater than \$3,000. A study of sickness during the depression⁹⁷⁹ in 10 localities within poorer districts in 8 large cities showed that the illness rate in 1932 for the "poor" was 40 per cent higher than for the "comfortable."* For the families which had been made poor by the depression, the illness rate was 60 per cent higher than that for the comfortable families. Children under fifteen years of age in depression-poor families had more respiratory diseases than did the children in comfortable homes. The incidence of respiratory diseases differed from 120 per 1000 children for the poor to 55 per 1000 for the comfortable group.

In discussing the environmental trends among the American Negroes, Michelson⁷⁰¹ states that the greater incidence of tuberculosis, syphilis, higher mortality rate and more illness among the Negroes than the Whites in the United States can be associated with factors which go to make up the Negro's poor socio-economic status. In the last two decades improvement in the Negroes' general health and a lowered mortality rate have accompanied increased health facilities and some improvement in their living conditions. However, there are still wide discrepancies between the health facilities and living conditions available to Negroes and Whites. Much needs to be done in this area before a marked improvement in the well-being of the Negro can be expected.

We must realize, of course, that the poor physical condition of low income children springs from more than the actual food, shelter and medical care. Several factors may contribute. Some of the parents of these children are themselves suffering from long malnutrition and therefore lack the vigor and ambition necessary to improve their condition. Some are the not-quite-normal intellects of the population whose low intelligence prevents them from raising their economic status and from understanding the needs of their children and providing for them. Some are the victims of social and economic forces.† In many instances the contributing factors

* "Poor": annual per capita income less than \$150. "Comfortable": annual per capita income \$425 or more.

† Dr. Howard Lane of New York University says, "Bad homes and delinquent children do not cause each other—they result from the same cause. Society must make good homes possible." (In a lecture in Detroit, Michigan, 1945.)

are multiple. The poor physical condition of children in low income families may therefore be due to a complex of hereditary, nutritional and social factors.

Effect of Socio-economic Status on Emotional and Social Development. There are many factors in socio-economic status which affect children's emotions and attitudes. Crowded, dilapidated homes, inadequate clothing and other evidences of "inferior" status leave certain marks on children. They cannot have the sense of personal adequacy which comes from the feeling that one can be proud of one's home, that one's clothes are as good as those of others, that one's father is a "success." They cannot, especially in adolescence, feel "equal" to asking any girl they choose for a date, or to asking any boy in the class to "come home and meet my family." False standards of snobbish over-valuation of material things is not involved here. Children from modest homes can and should be proud of the real values of such homes. But to be conspicuous for the holes in one's clothes, or because one cannot produce a nickel for morning milk leaves a deep mark on any child's feelings of self-adequacy.

Habits of cleanliness and tidiness are far more difficult to acquire in homes where there is no running water, where the rats and cockroaches over-run one's best efforts to fight them off, where there is only one outfit of clothing each and that is of cheap, hard-to-keep-clean-or-pressed material, and where there is no drawer space or closet space in which to keep anything. Respect for property rights is much harder to acquire in families where no one child owns anything "of his very own" but where, for example, any available clothing is put on the child who needs it most at the moment. (See further discussion of this in Chapter 14.)

On the other hand, there are certain pressures upon the more privileged children. Middle and upper class children are subject from early childhood to the pressure for success in life and for social acceptance by "the right people." Hence, they come to fear failure, not only in the accomplishment of long-range "life" goals but also in the accomplishment of immediate goals. The underprivileged child has no such expectation of success, hence little of the same kind of fear of failure. Especially in school, success is demanded of children in quite different proportions depending upon family status in the community. Middle and upper class parents put constant pressure upon their children for school success, whereas the lower class parent more readily accepts special classification in retarded classes, quitting at the end of the eighth grade, etc.

Although "social class" does not stamp all individuals within that

class with the same patterns of behavior, there are certain experiences common enough to the different "social classes" to warrant comment. Davis and Dollard²⁴⁶ found in an analysis of over one hundred Negro adolescents in the deep South that children of underprivileged Negro homes are punished physically more often and more severely than are children in more privileged homes. Characteristic was the mother who said, "I can't understand why he is so bad—I licks him all the time." The investigators felt that children governed by this type of well-intentioned but severe discipline give more blows than average children because they receive more. They learn early the emotional satisfaction which accompanies violent expression of emotion; they learn too, that beatings and fights are rarely fatal, whereas middle and upper class children are continually taught the danger of overt aggressive behavior. Aggressive children in slum areas are encouraged to be still more aggressive so that they may become capable of looking out for themselves. In "nicer" neighborhoods the aggressive children are suppressed as rough and hard to get along with. Sexual exploration does not bring the loss of social status for lower class children that it does for other children, since, for the under privileged child, sex is usually an open book in his home. Such children are much better informed, much less repressed about sex and elimination.*

In certain matters, however, like amount of friction and emotional strain, Davis and Dollard²⁴⁶ found children within each social class differing more widely from each other than one class differed from another class. This means that some privileged children showed more strain and greater emotional tension than most underprivileged children showed. There were harmonious and happy homes as well as divided, tense and quarrelsome homes in all socio-economic classes.

Two studies seem to indicate that more mental disorders are found in the youth of poor rather than good communities. Among boys examined in Washington, D. C. for the Armed Forces, Hadley⁴²⁰ reports there were one and one-half more rejections for personality disorders from a slum than from a good housing area.† In Boston among 60,000 selectees, in the winter, spring and summer of 1941 to 1942, Hyde and Kingsley⁴⁹⁵ reported a significant

* The relationship of delinquency to socio-economic status has been reviewed in Carr-Saunders, *et al.*¹⁹² Helpful material will also be found in the summaries of Recommendations for Action, Report of the National Conference on Prevention and Control of Juvenile Delinquency. U. S. Gov't Printing Office, Wash., D. C., 1947.

† Data obtained from 1940 Housing census and physical examination findings of 5,800 boys.

increase in mental disorders and psychopathic personalities from the best to the poorest communities.

Housing and Health. Housing is one of the indices of the economic status of a family. Bad housing is a symptom of low economic status and does not exist alone. It is accompanied by inadequate food and insufficient medical care. As Chalmers phrased it: "Just as people live in a one-room house, so it might be said that they are clothed and fed in a one-room manner."* Because housing is part of a constellation of economic and social factors, it is difficult to say that bad housing, *per se*, produces retardation in growth or conditions which make it difficult for the child to develop. However, certain factors which interfere with growth appear more frequently in families in poor homes than in good homes and, furthermore, it has been demonstrated that the health of individuals has been improved by slum clearance. Britten¹³⁷ states that a causative relation between housing and health is quite obvious when housing is defined to include freedom from crowding, proper sanitation, playground space, home environment in general, and when health is defined as the maintenance of a state of physical, mental and social efficiency.

Considerable evidence pointing to a relation of housing to health was revealed in a National Health Survey made by the United States Public Health Service in 1935 to 1936.¹³⁷ In this survey, two and a half million persons in eighty-three cities within eighteen states were contacted by a house-to-house canvas. When the families were classified according to the number of rooms in the house, a relationship between crowding and the incidence of communicable disease was found. Children in crowded homes† tended to have diseases, such as diphtheria, mumps, measles and scarlet fever, at an earlier age than children in noncrowded homes. This meant also a higher death rate for these children in poor homes, since younger children do not have the resistance of older children with which to combat these diseases. It was also found that tuberculosis occurred more frequently in the crowded homes. The increase in tuberculosis in these homes was particularly noticeable among children under fifteen years of age. Furthermore, disabling digestive diseases, such as typhoid fever, diarrhea, enteritis, colitis, indigestion and other stomach ailments, were found more frequently in houses without private, inside, flush toilets. Accidents increased in number as rent values declined.

* For a discussion of the basic principles of healthful housing, see Pond.⁸⁰⁵

† Homes were classified as follows: 1 person or less per room; 1 to 1.5 persons per room; more than 1.5 persons per room (these were considered the crowded homes).

Accidents were more likely to occur in houses with fire hazards and with dark, poorly ventilated and poorly heated rooms.¹³⁶ Thus, this study indicates that children living in poor houses are more liable to certain diseases and accidents than are children in adequate houses. These health hazards may impede the progress of the development of these children.

Evidence that slum clearance results in improvement in health for the people living in such an area comes from a study done in Liverpool.¹³⁸ This slum area had a higher death rate among infants and a higher death rate due to tuberculosis than the entire city. This area was cleared and new houses built. Following this rehousing, death rates were in all instances reduced.*

Poor housing conditions make the establishing of good health habits very difficult, if not, in some instances, impossible. Poor toilet facilities may interfere with regular elimination. A quiet, pleasant atmosphere at meal time may be prevented by the hurry, noise and confusion that results from too many people in too small a space. Sleeping facilities may be limited. Children frequently must sleep together in poorly ventilated rooms. Hardy,⁴³² in her study, found, in some instances, that as many as six children were reported to be sleeping in one bed. Under such conditions it would be a rare child who could get up in the morning feeling refreshed and ready for the day's activity. Under such circumstances children develop fatigue. This fatigue will be enhanced by the noise and confusion and the inadequacies of diet.

Effect of Neighborhood upon Delinquency. Housing not only affects the physical health of children but it also can contribute to their social and emotional development. It has been said that juvenile delinquency flourishes in the shadow of the slums. While the great majority of slum-dwellers are decent, law-abiding citizens, studies have repeatedly shown that the areas of high delinquency rates are almost always the areas of bad housing. In one Chicago slum area one out of every four boys between ten and seventeen years of age passed through the juvenile court in one year. The delinquency rate in Hartford slums was found to be twice as high as that in the rest of the city, and in Cleveland the rate was three times as high.⁸⁰⁶

Some facts bearing on the relationship between housing and delinquency are found in the classic study by Shaw⁸⁷⁶ who explored

* M'Gonigle, reported by Pond,⁸⁰⁵ also found a decrease in infant mortality when families moved from slum areas to housing projects. However, he found an increase in general death rate which he attributed to poorer diets since the rehoused people tended to spend more of their income for shelter and less for food.

the slum areas of Chicago known to the Juvenile Court as "delinquency areas." He later extended the study to six other cities: Philadelphia, Cleveland, Denver, Seattle, Birmingham, and Richmond. Although these cities differ widely in size, type, location and composition of the population, they show the same patterns of delinquency areas as were found in Chicago. Because the facts uncovered in this study have an important bearing on the relationship between housing and delinquency, and because they are widely known, it may be well to restate some of its conclusions:

1. Juvenile delinquents are not distributed uniformly over the city but tend to be concentrated in areas adjacent to the central business district and to heavy industrial sections.
2. The rates of delinquency tend to vary inversely with distance from the center of the city.
3. In areas of high delinquency rates a larger proportion of delinquent boys become recidivists (return cases) than in areas of low delinquency rates.
4. The location of delinquency areas is closely related to the processes of city growth: generally speaking, the areas of highest delinquency rates are in the districts that are subject to invasion by industry and commerce, and the areas with the lowest rates are in the outlying residential communities.
5. Delinquency areas are generally characterized by physical deterioration, increasing population, high rates of dependency, and high rates of adult crime.
6. The nationality composition of the population in the delinquency areas of Chicago changed almost completely between 1900 and 1920, while the relative rates of delinquency in these areas remained practically unchanged. The early German, Irish, and Scandinavian inhabitants were succeeded by Poles and Italians, without any marked change in the rate of delinquency.
7. On the other hand, as the older immigrant groups moved out of the delinquency areas, the rates of delinquency among the children of those groups decreased and they tended to disappear from the juvenile court.

We may well ask what it is about slum homes that makes it easier for young people to get into trouble with the law. Crowding explains much of it, lack of space, driving children out of their dirty, sordid homes into the streets or neighboring pool halls. Lack of play space outside of the four walls of the houses causes children to overflow onto sidewalks and into streets under the wheels of traffic, or into alleys where parental supervision is difficult or impossible. Lack of constructive things to do leads to property destruction or stealing for excitement. Too many children to the block with no play space results in play groups that are large and unrestrained. During the years of childhood when imitation of

gang leaders is prominent, the rowdies of slums become models. Delinquency is almost inevitably frequent under such circumstances. Good housing, on the other hand, with its adequate space, cleanliness, attractiveness, good ventilation and neighborhood facilities for recreation, contributes to the development of better, happier and more normal individuals. In such an environment children have more of an opportunity to develop good habits and attitudes.

Child Labor Affects Development. Child labor is another index of economic status of the family. Folks defines child labor as

... any work by children that interferes with their full physical development, the opportunity for a desirable minimum of education or their needed recreation. It is the employment of children in any occupation at unfit ages or for unreasonable hours, or under unhealthful or hazardous conditions, or while the schools which they should attend are in session.³²⁷

Such child labor is still a social and economic problem in spite of assertions by some that it is almost non-existent. Folks estimated that in 1938 approximately 850,000 children under sixteen years of age were gainfully employed. These children work both in cities and in agricultural areas.³⁵⁴ In the cities they are, for the most part, employed in trade and service fields, working in repair shops, filling stations, restaurants, hotels, bakeries, stores, offices, street trades and domestic service. In agriculture they participate in its industrialized forms and in depressed areas. Child labor is found among the migrant workers in seasonal work in beet fields, picking of fruit, etc. Child labor is also found among tenant farmers. Children sixteen and seventeen years old in urban areas are more often employed in manufacturing than are the younger children.¹⁰⁷⁸

During the four years of the recent war an extremely high percentage of children were employed either in the war plants or in the service industries which were stripped of adult personnel by the war plants. In Detroit, for example, 90 per cent of the senior boys in several of the city high schools were gainfully employed for from four to eight hours a day. Almost as high a percentage of the girls were employed as baby sitters, clerks, housekeepers and other jobs for from four or five to twenty-five hours per week. In one neighborhood in this city 75 per cent of junior high pupils were working for pay. This was, of course, a temporary situation, but teachers universally complained that during this crisis homework became "a thing of the past," that yawning and other signs of fatigue substantiated the impression that the children were chronically tired, and that distraction of attention and interest in the paid job offered serious competition with school work.

In considering the effect of child labor on health and development, it is necessary to keep in mind that child labor, like housing, is not a completely isolated economic or social factor, but is bound up with a vast number of conditions. This complexity of the problem, no doubt, accounts, in part, for the inconclusive evidence available for the effect of employment on growth in height and weight. Other factors, such as the selection of children for work by the family and employer, and the misrepresentation of age, add to the difficulty in evaluating the results of studies. Numerous studies indicating inferiority in size of working children have been published in Europe. In America some studies have confirmed the European results; others have not been in complete accord.*

While evidence regarding the effect of employment on growth in height and weight is inconclusive, it can be said that, for many children, employment, unless well controlled and selected in the light of each particular child's health and development, introduces health hazards and limits his opportunities for learning and recreation. Many investigators have found physical defects more prevalent in working than in nonworking children.^{1053c} McGill,¹⁵⁸ for example, reported the findings of a Children's Bureau study comparing the physical defects present among newsboys and other boys who did not sell. He showed that heart disease was three times more prevalent among the sellers than the non-sellers; thirty-eight per cent of the newsboys, as compared with seventeen per cent of the non-sellers, had aggravated throat conditions; and eleven per cent of the newsboys, as compared with five per cent of the others, had orthopedic defects.

Fatigue may result from the physical strain of unsuitable hours, long stretches without rest periods, and pressure due to the piece work system. Poor postural habits may develop from the habitual position of the body for long periods of time or from general fatigue. It is possible that muscular strains may result from too heavy work. That children may be called upon to do work incompatible with their stage of development is shown in cases cited by Wood.¹⁰⁷⁸ A thirteen-year-old boy had to lift heavy cases of soft drinks on and off a truck and carry them into customers' stores. Another boy, just fifteen years of age, had a job of stacking boards for a lumber company. Children are also subject to accidents and to the hazard of occupational disease.†

* For a discussion of these studies, see Bibliography^{1053c} (pp. 291-296).

† The two to three times greater accident rate in children under sixteen years of age in Michigan in 1942 to 1944 bears out a relation between inexperience, lack of caution and greater susceptibility to fatigue of younger workers and accident rate.⁹⁸⁸

Children who are employed may lose out on education. Wood found that only one in every ten of the sixteen and seventeen year olds whom she interviewed were high school graduates. Two-thirds of those under sixteen and one-third of the sixteen and seventeen year olds had failed to complete the eighth grade. This lack in education, she found, was not substantially alleviated by later academic schooling or vocational education. The jobs, themselves, offered little of educational value. For the most part, they required little skill, and offered little chance for advancement or training for more desirable work.* Further indication of the effect of employment upon the education of the child is given in a study²⁰⁷ of children engaged in street trades in Detroit in 1938. Using scholarship records as a basis for her judgment, the author doubted whether many of the children included in the study were able to work in these trades without retarding their school progress. For these children there was a great predominance of Grades "C," "D," and "E."

Children engaged in migratory labor have all the difficulties confronting other working children and, in addition, lack a stable home. Moving from place to place with no permanent address, they miss the opportunity of going to school regularly, lack decent food and housing and the necessary health and medical care. It is reported that migrant adults and children have fourteen per cent more disabling illnesses than nonmigratory workers.⁴⁵²

What little is known about the health and growth of working children leads one to urge thoroughgoing enforcement of regulatory and supervisory measures.

Employment certificate issuance should be handled with great care, opportunity for falsification of age should be reduced to a minimum, the hours of labor should be carefully watched, employment in dangerous trades eliminated, and physical examination of the child should be given great emphasis.^{1053c}

RURAL AND URBAN ENVIRONMENTS

Urban Life Usually Means Greater Nervous Strain for Families. One of the most striking contrasts in type of environment in which children live is that between urban and rural. MacIver,⁶⁴⁹ an expert in this field, says that cities, roughly in proportion to their size, represent the antithesis of rural conditions. Whereas the country is typified by physical isolation, the city is crowded; in the country the family is a center of many activities;

* Taylor⁹⁸⁸ reported in 1945 that children easily acquired the job changing habit. She told of one boy who had nine jobs in nine and one-half months.

in cities associations of many kinds supplant functions of the family. In cities contacts with humanity supersede contacts with nature; differentiation of economic classes and specialization of economic tasks which rank and grade men are prominent with resulting disparities of opportunity and their accompaniment of competitive living. The complexities and competitions of city life produce nervous strain of a type not usual under rural conditions.

Both City and Country Offer Certain Advantages to Growth. The country, rich with open spaces for imaginative play and with nature lore, domestic animals, and chores to do, offers a type of physical exercise, and of character-forming opportunities not to be found in larger cities. City parents envy rural parents these environmental factors. On the other hand, rural parents envy city parents their libraries, art museums, lecture series, theaters, concerts, schools, music conservatories and markets for buying food, clothing and other necessities. The urban teacher wishes for the nature lore of the country as a background for biology, botany, etc. The rural teacher envies the city co-worker the same educational facilities which the rural parent envies the urban parent. It can be supposed that these physical, psychological, and social differences between rural and urban environments produce differences in the pattern of development of rural and urban children and necessitate different kinds of educational programs for these children.

It is difficult to evaluate differences between rural and urban children. In the first place, no clear-cut boundaries between urban and rural life exist. One merges into the other. A sector of urban life, such as a hotel or a country mansion, may be located within a rural area. Both rural and urban populations are heterogeneous, rather than homogeneous. There are in both types of environment differences in socio-economic status, racial differences with their varied cultural patterns, and varied hereditary strains. We must remember, too, that there are good rural and poor rural environments as well as good and poor urban environments. These variables must not be overlooked in a discussion of the effects upon children of rural versus urban life. Perhaps the very complexity of the problem accounts in part for the limited information available.

Physical Health Is Affected. There are some studies of the height and weight of rural versus urban children, but the results conflict. Meredith⁶⁹³ discusses four studies in which the growth of rural and urban children is compared. One of these, a study in Utah, showed that schoolboys of urban Utah were slightly taller and heavier than schoolboys of rural Utah. An earlier study in

Missouri found a similar difference in height but no difference in weight. In contrast, a study of English school children and a study of American children under six years of age agree in establishing differences both in height and in weight in favor of the rural children. We need further studies in which other growth-influencing factors are controlled.

Some differences in the health of rural and urban children, as studied by the incidence of illness and specific diseases, have been found. Illness seems to occur with approximately equal frequency in the country and in the city. However, a United States Public Health Service Survey of rural and urban families, extending over a period of a year, revealed age differences between the two groups. It was found that country children up to ten years of age were sick less frequently than children of similar age living in cities, but that after ten years and up to sixty-five years the rate of illness in the rural communities was in excess of the urban.⁹⁷⁸ There is a tendency for more urban than rural children to contract communicable diseases, such as measles, whooping cough, mumps, etc. According to a National Health Survey* in urban areas, the safest place for children, when considering their chance of contracting communicable diseases, is the larger cities of a population of 400,000 or more. The smaller urban communities studied, those with a population of less than 25,000, had the highest urban rate for these diseases. Thus we see the lowest disease rates in the largest cities and in rural communities. Perhaps the explanation for better protection in the rural areas is lack of contact with disease, and for the protection in larger cities is better public health services.

A study⁹⁷⁸ of the extent of tuberculosis infection, as revealed by the tuberculin test, showed that only 16 per cent of the ten to fourteen year old children in a rural part of Cattaraugus County in New York State had been infected with the tuberculosis bacillus, while sixty-seven per cent of a random sampling of thirteen year olds in the East Side Public Schools of New York City had been infected. If we can generalize from this study, rural areas offer children less chance of exposure to tuberculosis than do urban areas. On the other hand, rural children, in comparison with urban children, do not fare as well in the case of malaria and hookworm in geographical areas where these diseases are prevalent. A study of the incidence of malaria⁴⁷² and another of the incidence of hook-

* Survey of rural and urban children under fifteen years of age in a Southern State, as a part of a National Health Survey, showed that the rate per 1000 persons under fifteen years of age of disabling illnesses and of communicable diseases was 42 per cent for the farm population, 54.5 for nonfarm rural populations and between 60.7 and 89.9 for urban populations.⁴⁷²

worm²¹⁹ showed that they occurred more frequently among the rural than the urban children.*

While studies point to the fact that, on the whole, rural children stand a better chance of escaping the hazards of communicable diseases and tuberculosis, we know very little about the relative overall health status of rural and urban children.

General Intelligence Ratings for Rural and Urban Children. It seems clear that children in cities measure higher on intelligence tests than children in the country,^{306, 469, 793} and that children in good country districts measure higher than children in poor country districts.^{813, 814} There are probably two factors involved here. For several generations the alert and ambitious families tended to migrate to the cities. This probably means that urban children come from slightly superior stock. But there is also a second factor of environment; the school terms are shorter in rural districts due to poor financing of schools, the need for children to do seasonal farm work, muddy and snow-blocked roads and other difficulties of getting to school. Rural teachers are less specialized than urban teachers, the rural teacher often having to teach all subjects in several grades, whereas urban teachers often teach only arithmetic, or science. Subsidiary educational facilities, like libraries, museums, etc. are also at a minimum if not altogether lacking in rural areas.

It should be noted, however, that in only certain types of intelligence tests are rural children conspicuously slower than urban children: in pencil and paper tests, in those involving coins, street-cars and other experience to which city children have greater access, and in distinctly verbal tests. These tests account for about half of the 10-point I.Q. difference in favor of urban children found in one study.⁵⁵⁸ Test items involving practical problems showed much less difference between the two groups. This indicates that a considerable portion of the difference in intelligence rating between rural and urban children can be regarded as due to experience factors.

Developmental Maturity of at Least One Type Is Also Somewhat Different. That city boys exhibit more mature behavior than country boys of the same age is confirmed in a study of social developmental age by Furfey.³⁵⁹ The subjects for this study were one hundred and eighty-seven boys, aged eleven to thirteen years, from the west north central area of the country. All were white children living in their own homes. The urban boys were precocious at all three ages, although the superiority was less

* A study² reported in 1946 stated that one-third of a group of rural children in Florida were infested with hookworm.

striking in the case of the thirteen year olds. At eleven they showed a precocity equivalent to about a year and one-third, at twelve about two years, and at thirteen about one-third of a year. The author comments:

Possibly these differences are large enough to be taken into account by those who plan practical work with boys. If this is true, then we should not try to fit urban and rural boys into the same mould. Recreational programs should not be taken over bodily from the city and applied to country boys without making due allowance for urban precocity.³⁵⁹

We may question, however, whether a developmental test which measured work habits, certain specific kinds of mechanical aptitudes, and self-resourcefulness might not have shown greater precocity among rural than among urban boys. There are as yet no studies which compare developmental maturity of rural and urban girls.

School and Home Programs Should Differ at Least to Some Extent. Differences in environment of rural and urban boys and girls should have a real significance for teachers in planning their school programs, since school programs should always be based on an understanding of the environment in which the children live. Such consideration will necessitate one kind of program for rural children, another for urban. For example, Sanchez³⁶⁴ emphasizes the importance of relating school activities to the daily interests of rural children. As these interests and activities differ from those of city children, so, too, should the school curriculum of rural children differ from that of city children.

Parents, too, must adapt care and education to the neighborhood in which they live. City parents fall, quite naturally, into a habit of "leaning" upon city facilities. They take advantage of music and dancing teachers, of art and riding lessons, of children's concerts, etc. In apartment neighborhoods play space is at a premium, so children are urged into scout programs, Y.W.C.A. or Y.M.C.A. projects, and week-day church clubs. Wanting to "keep children busy" and "to give them every opportunity," parents frequently allow the city child to schedule most of the hours of every day in the week. With no logical chores to do there are few opportunities in cities to give children meaningful, regular work to do. "Made" work is useless for teaching a sense of responsibility, since children have no sense that such work is needed. Therefore, they argue, it doesn't matter whether they do it or not. Rural parents, on the other hand, may fall into the error of isolating their children too much from group experiences on the one hand; or, in order to provide group experience and good (consolidated) schools, may find

themselves in the same position as urban parents with over-scheduled, overtired children on their hands.

MOVIES

Physiological, Emotional and Moral Effects of Attendance at Movies. Movies have come to influence the lives of children in such a way and to such an extent that they must be considered in some detail. Fortunately for our analysis of the effect of movies upon children we have an extensive series of studies made by psychologists and sociologists under the auspices of the Payne Fund.⁷⁷⁰⁻⁷⁸² These studies found that, in general, movies are an important source of evil stimulation to children.

One of the studies investigated the effect of movies upon children's sleep. Children, after seeing a movie, slept as if they were physically exhausted, and it sometimes took a week for sleep to return to normal. Certain types of movies caused enough loss of sleep to have a detrimental effect upon health and conduct. This effect is greatest at puberty, probably because the predominating theme of most movies is love, a theme of great interest to, but little understood by most young adolescents.

Another of these studies showed that 33.8 per cent of the children examined complained of eye fatigue after attendance at movies. Still another study measured the physiological changes which occurred while children were looking at movies. It was reported that children are profoundly affected even by so-called "tame" pictures, and that during scenes of danger or suspense the pulse rate rose from 75 or 80 beats per minute to 125 or 140 or even higher. Although there were striking individual differences in reaction, children from six to eleven years of age responded in this manner more than did adolescents, all children being more excitable on the average than were adults. The younger children reacted more violently to the danger episodes; the adolescents were more responsive to erotic sexually stimulating scenes.

Another study corroborates this in reporting that danger and other forms of pseudo-tragedy produced the most intense reactions in children of less than twelve years. These reactions were somewhat less severe from twelve to sixteen years, and were considerably reduced after the age of nineteen. Erotic scenes produced little response in most children at nine years; some children responded at ten, others at eleven and twelve. Response to erotic scenes increased definitely at puberty, and reached a maximum at about sixteen years.

Every clinician recognizes certain signs of increased nervousness (nailbiting, loss of weight, tics, disturbed sleep) associated with

attendance at exciting movies or with too constant listening to exciting radio programs. This effect is heightened if the movies are seen at night, just before going to bed, particularly if they keep the child up past his usual bedtime. Several studies in addition to the Payne studies^{327, 528, 777, 781} corroborate the clinician's conviction that nervousness, fears and night terrors can be traced to movies.

Further evidence that children are influenced by what they see in the movies is given by Cressey and Thrasher⁷⁷⁸ who report that crime pictures and sex pictures have a pronounced effect upon delinquency. Charters⁷⁷² in summarizing the Payne Fund Studies says that from the viewpoint of children's welfare commercial movies "are an unsavory mess." Charters reports further, however, that motion pictures "stir powerful ambitions, good and bad; develop permanent ideals, high and low; and crystallize the framework of life careers," and therefore have strong potentialities for good as well as evil.

We may conclude that children tend to react emotionally, physically and morally to movies. As they become older, with changing interests and widening experience, and somewhat less "realistic" reactions, their emotional and physiological responses are somewhat less violent. However, it is clear that too frequent attendance at movies may prove far too stimulating to a nervous or high-strung child. If such a child attends movies at all there should be definite restriction upon the type of movie he is allowed to see.

Frequency of Attendance at Movies. The Film Daily Year-book³¹⁵ reports an increase in total attendance at movies for the country at large of forty million weekly in 1922, 110 million in 1930, the depression cutting this to sixty million in 1935. Brown¹⁴⁶ reports estimates of a rise back to the 110 million weekly attendance again in 1937. Movie attendance rose sharply with war employment in 1942*. The Payne Fund reports that 36.7 per cent of movie-goers are minors, 3 per cent of all movie admissions being attributed to children of less than seven, 13 per cent to children of seven to thirteen years, and 21 per cent to children of fourteen to twenty-one years. Children of five to eight years average 0.42 times per week at movies, though 22 per cent never attend. Children from eight to nineteen years average about one movie per week, 5 per cent never attend, but over 20 per cent go twice or oftener per week. Boys go oftener than girls.

Brown¹⁴⁶ reports a study made to check movie attendance of children in four large metropolitan movie houses over a period of

* Time Magazine, November 16, 1942

four consecutive weeks chosen during a time when public schools were in session. Children under twelve years of age attending matinees (before 6:00 P.M.) made up 16.33 per cent of the total all-day attendance; children attending evening performances made up 2.35 per cent of this total. Altogether, then, children under twelve years of age made up 18.68 per cent of the total attendance at these four metropolitan movies. Contrast this with the 16 per cent of children under fourteen years of age reported by the Payne Fund on a country-wide sample: one is left to assume that city children attend movies somewhat more often than do children of rural and small city areas. Brown points out the findings of both of these studies as "in curious contrast to the 3.2 per cent estimated by Will H. Hays, movie czar, and the 8 per cent estimated by the industry."¹⁴⁶ Saturday-afternoon movie attendance by children is characteristic in many communities. Dale⁷⁷⁴ reports that about two-thirds of movie attendance for children of seven to twenty years of age occurred over week ends. It is unfortunate that Saturday-matinee programs are often made up of the cheaper movies which movie operators are forced to show because of block booking from Hollywood, a system by which space fillers are attached as riders to the contracts let for the audience-appeal movies.

Movie Advertising. One study¹ showed that 22.6 per cent of Chicago children sampled and 35 per cent of New York children sampled chose their movies on the basis of newspaper and magazine write-ups. Granted that all American advertising presents the rosier or more appealing aspects of the advertised product, this study found 70 per cent of movie advertisements presenting subtle implications that unconventional aspects of basic human impulses would be portrayed. This may be regarded as the more appealing aspects of a movie only if we grant a public taste educated to be attracted by such appeals. Certainly, if children are reading advertising matter which appeals to the lewd, the morbid, the unconventional and the bloody, we can scarcely expect their tastes in such matters to be improved.

Brown¹⁴⁶ quotes an ad for *The Emperor's Candlesticks* as follows:

They meet! They love! THEY KISS! Never were there lovers who loved more dangerously! Reckless, impetuous sweethearts clashing in exciting conflict. Surrendering to overwhelming love! See it TODAY!

And an ad from *Mutiny on the Bounty* as follows:

Here in the jungle you will learn a *thrilling new love technique!* Lovely maidens captured in the bride raid, and carried away to an island Paradise—to be taught the meaning of love! What girl wouldn't trade civilization for the thrill of being carried away in the strong arms of her jungle mate?

Such reading matter, even as advertisements, should give adults serious concern about them as an influence in the moulding of literary taste in children. This type of appeal to an unfolding sex awareness cannot help stimulating adolescents to a purely physical sex consciousness. In addition to doing this, it offers the suggestion that flaunting of social convention is not only exciting, thrilling, glorious, but also quite permissible. The blood-thirsty, super-adventure type of movie also holds a possibility of rousing masochistic or sadistic impulses.

Not All Influences of Movies Are Bad. Not everything about commercial movies is bad, however. One study⁴⁷⁸ reports that an adult committee, surveying the movies seen by children over a period of time, classified 29 per cent as good, 41 per cent as of average quality, and 30 per cent as poor. Such dramatizations as *Gone with the Wind*, *Henry the Eighth* and *Henry the Fifth* teach history on a fairly authentic and thoroughly appealing basis. Such stories as *Captains Courageous*, *Little Women*, *Great Expectations* and *David Copperfield* increase the public library circulation of these books many times over the average circulation. Modern city living offers very little outlet for the sense of adventure, the need for excitement and widened horizons, and the urge to romance now held in check by delayed marriages. Movies offer an outlet for these impulses, vicariously expressed to be sure, but better expressed in this way than in delinquency. Society has a good deal at stake in undertaking the job of forcing movie producers and showmen to offer young people movies which provide a constructive outlet, and which do not stimulate destructive emotions. Parents, teachers and other workers with children must see that desirable community programs for the promotion of physical activity and group adjustments are offered as competition to too much sitting passively in movies.*

Parents and teachers can set standards in taste in movies and radio programs and are urged to do so by Stoddard⁹⁵² in an article contributed through the Iowa Child Welfare Pamphlet series. He suggests that parents should keep informed about the movies through such magazines as *Child Welfare* and *The Parents' Magazine*, such a newspaper film guide as that of *The Christian Science Monitor*, and also an intelligent reading of the better reviews of movies in newspapers and magazines. "Parents can develop taste and judgment and pass them on to their children in such a way that the children will learn to make sound criticisms independently." He adds that "at best, movies should never be more than an

* Society's attempts to control movies are well reviewed in Brown¹⁴⁶ (pp. 314-323).

occasional supplement to a rich outdoor existence in the life of a child."

Dale²⁴³ reports that children show a natural preference for books and movies which can be considered sound dramatically and artistically to those which would be considered trash by most adults. Motion pictures, when good, may help to lower the "readiness level" in such subjects as social science, chemistry, etc.,* so that we can teach these subjects somewhat earlier in the curriculum. Motion pictures seem able also to stimulate favorably children's imaginations and their interests^{213, 227, 244, 346} as well as self-activity.¹⁰⁷⁷

Movies Exert a More Permanent Influence than Many Other Experiences. Things seen in movies, especially since the advent of the sound movies, which make the presentation to the ear as well as to the eye, are remembered more clearly and longer than are things presented through books and lectures. One of the Payne Studies⁷⁷⁸ of how well children remember what they see in movies, compared to how well adults remember, using the amount adults recall as 100 per cent, found that children of eight and nine recalled 69 per cent; children of eleven and twelve years recalled 75 per cent; and children of fifteen and sixteen recalled 91 per cent as much as adults did. Children of the second and third grades recalled six weeks later 90 per cent as much as they did the day after the show. However, in the study cited above, it was also found that children retain best from movies those items which were set off as important and those which had high emotional content rather than the more prosaic material. This is natural, if one recalls the Law of Effect in Learning. It is a factor which should guide the planning, writing, and executing of movies intended to educate children, since the impression will be lasting only if the presentation is interesting and alive.

Movies for Schools. This better retention from movies has led to rather wide use of movies in school work. The American Council on Education in 1940-41 worked on an encyclopedia of films which have been found valuable in schools throughout the country. This can be obtained through the offices of that organization in Washington, D. C.† Jersild⁵²⁵ says, however, that, although much is being done to introduce movies into the classroom, children still spend

* A summarization of reports in this area can be found in Dun, F. W. and Schneider, E., "Teaching With the Motion Picture and Other Visual Aids," and others in *Motion Pictures in Education: A Summary of the Literature*; H. W. Wilson Co., 1937.

† See also Cook and Rahbek: *Educational Film Catalogue*,²²⁸ 1939 and ensuing years. And Horkheimer and Diffor: *Educator's Guide to Free Films*,⁴⁸³ 6th Ed., 1946.

considerably more time listening to the radio at home and attending commercial movies than they do on classroom movies and radio.

THE RADIO

Children spend so much time listening to radios that radio has come to be considered an important factor in both physical and mental growth. If only negatively it is a factor in physical growth, since children, when listening to radios, are not playing actively out-of-doors or sleeping at night. Occasionally this becomes a positive factor in physical well-being when it means that an otherwise overstimulated child can be persuaded to stop vigorous play for a half-hour before supper in order to listen to the radio while he rests enough to improve his appetite. What the radio means in general information on the one hand, or in nervous overexcitement on the other, is important to intellectual growth, and to the formation of standards and attitudes.

Extent of Radio-Listening among Children. As recently as 1929 there were no radio programs for children. At this time, a few bedtime stories were introduced. These and a few other experimental programs for children appeared between 1929 and 1931, after which the development of the number of radio programs directed at children was so rapid that in 1933 criticism of these programs by parents and welfare groups led to a fairly extensive investigation by C. C. Clark.²¹³ Other investigations had preceded this one, but Clark considered them quite inadequate considering the seriousness and importance of the subject. Beginning in 1933, he surveyed the listening habits of white children in Washington, D. C. and later, in 1937, in Fairfax County, Virginia. He found that not only children's programs but practically all types of programs were listened to by children of nine to eighteen years of age. Ninety-six per cent of the homes in the area covered had at least one radio, a figure slightly higher than the national average.²²⁰

The Joint Committee on Radio Research found that in January, 1937, 78 per cent of the homes in the United States possessed radios. In cities of over 2500, the percentage of homes owning radios was 90. Surveys of elementary school children show that 90 per cent of them reported having radios in their own homes, and that many of the remaining 10 per cent had access to radios in the homes of neighbors and friends. This figure has been confirmed by several studies.^{48, 296, 522, 525, 642, 1018} Whether this number increased or decreased in the ensuing ten years after 1937 is not known to the authors of this book, but the probability seems to be that it has remained about the same.

Clark found that children spend on an average one to three

hours a day listening to the radio, and that they listen to such a variety of programs that the only sense in which a program can actually be said to be a child's program is that children listen more universally at certain hours, so that "whether a program will have a child audience is largely a matter of the hour at which it is broadcast rather than of the content."

The amount of time spent listening to the radio varies with different localities, with different socio-economic levels, and with the season of the year, more listening being done in the winter than in the summer. Eisenberg²⁹⁶ states that the average child between ten and thirteen years of age spends somewhat over six hours a week before the radio, which is a figure somewhat lower than Clark's average of one to three hours daily, but high enough to make radio an important consideration in the lives of children.

What Children Listen To. There seems considerable agreement among the studies about what type of radio programs have been found to be popular. Favorite programs include those designed primarily for adults, as well as those intended for children. Among the children's programs which rank high in favor are a number devoted to adventure and crime, as well as certain comedians on adult programs. Brown¹⁴⁶ reports a study made by his students of 2500 boys and girls in grades five, eight, ten and twelve. They found in both the fifth and eighth grades that the mystery play ranked first, with comic dialogue and skits and dramatic plays almost equally popular. By the senior year, the girls had lost interest in the mystery plays but continued to listen to the skits and plays. Senior boys retained interest in the "thrillers" more than girls and continued to like comic dialogue, but gave less time to plays and skits. Classical and semi-classical music is more popular in the eighth than in the fifth or twelfth grades; popular music increases steadily in favor from the fifth through the twelfth grade. Classical music at no time had more than one-third the listeners that semi-classical music had, or more than one-fifth of the listeners that popular music had. Boys listen to current events and political speeches more than girls do.

Brown also mentions the very low rating in interest given to "educational" programs, and says that, combined with a similarly low interest rating given to educational movies, this fact should make it clear that educators have much to learn from commercial or professional entertainers if they wish to win and hold interest. "One Man's Family" is an example of an educational program in family life which won almost immediate top ranking in program popularity and which proves that "it can be done." In general, preferences in radio programs seem to cut across lines of sex, of

intelligence and of socio-economic status, certain programs being equally popular with boys and girls, with bright and dull children, and with rich and poor. In general, however, boys show a somewhat higher preference for crime and violence programs than do girls. Fairy tales, and make-believe, nursery rhymes and folk tunes, and other children's hour programs directed toward younger children prove, upon investigation, to be reaching their audience, since they are more popular with children of less than nine years than with children more than nine years old.

Effect of Radio upon Children's Emotions. The effect of radio upon children's emotions seems less clear than the effect of movies. There are several studies,^{327, 522, 530} however, which point out that, although some fears seem traceable to the radio, the number of fears so stimulated seems small compared to the sources of fear elsewhere in the child's life. Children seem to become hardened with age to the stock devices used by radios to arouse suspense and create excitement, although certain children react badly. Clinicians occasionally recognize tensions and nervous habits which are aggravated by certain radio programs. Eisenberg²⁹⁶ found among the unfavorable influences of radio upon children nightmares based upon radio plots. Probably more significant, however, was interference with other developmental activities such as reading, since children tend to listen passively to the radio rather than to spend time reading. As we have said before, this unfavorable competition applies also to radio's interference with out-of-door play.

Probably the chief damage done to children by radios is loss of sleep. Getting children to leave the radio to go to bed is a current problem of great extent in the modern home. Conflict between parents and children about which programs the children should listen to is also frequent, though it seems to be more frequent in homes where parents are above average in educational background than in homes of below average status.⁵²⁵ Listening to radio programs seems to interfere with school "home work" among children who are above average in school work less than it does with poorer students. This seems natural, since the better student likes to study better and would resist giving up the radio in favor of study less than would the poorer student. It is unfortunate that this is so, since it sets up a vicious circle: poor school work, dislike of study, greater resistance to giving up radio, more radio, poorer school work.

How Public Opinion Controls Radio Programs. Organized resistance by certain groups of parents, of whom the New York Child Study Association is outstanding, has gradually, since 1935

forced commercial advertisers to put fewer vicious programs on the air during the five to seven o'clock hours, considered as the children's hour. Comparable to the gradual increase in production of historical or educational commercial movies, the same type of insistence on the part of the radio public has greatly improved the quality of children's radio programs offered by commercial advertisers. In addition to this, we have seen that children can be helped to like the better programs.^{762, 842} This can be done more effectively if children are stimulated to an interest in the better programs than it can be if adults adopt negative or critical attitudes toward the poorer programs.

Such groups as the Federal Communications Commission, the National Commission on Education by Radio, and the Federal Radio Commission have had a powerful influence upon the quality of radio programs. Every attempt is made to forbid obscenity and indecency, to keep a certain proportion of radio programs educational, and to present both sides of political questions.

What parents' groups and local communities have been able to do in controlling types of programs offered testifies to the sensitiveness of the radio to public opinion, and to the genuine desire of radio producers to please their public. In 1935 the Columbia Broadcasting Company hired a child specialist to work with an advisory board in designing programs which would meet the approval of parents and educators, as well as of children to whom they hoped to appeal. *The Christian Science Monitor* for May 14th, 1935, reports this Columbia Broadcasting group as setting up prohibitions against exalting "gangsters, criminals and racketeers" as modern heroes; against permitting disrespect for parental or other proper authorities; against presenting cruelty, greed and selfishness as worthy motives; against programs which arouse harmful nervous reactions in children; against presenting as laudable conceit, smugness or unwarranted sense of superiority; against identifying recklessness and abandon with a healthy spirit of adventure; against making unfair exploitation of others praiseworthy; against making dishonesty or deceit attractive or appealing to children. These restrictions have remained in effect to the present time.

As with movies, however, the educational programs, though carefully planned, cannot, as yet, compete in most instances with the commercial programs. Although the Metropolitan Opera broadcasts reputedly command one of the largest audiences on the air, the support must come largely from adults if one is to judge by the fact that of 3000 school children of all ages who were asked if they would listen voluntarily to the Damrosch hour only 5 per cent answered "Yes." In spite of this, the Damrosch hour, combined

with the children's concerts given in many of the larger cities by their symphony orchestras, and the children's performances of the Metropolitan Opera Company, certainly has a desirable effect, in the long run, upon children's taste in music.

Widespread use of the radio in schoolrooms has come so recently that the effect of such teaching instruments has not yet been adequately studied. A number of studies are under way, some of them being reported in such journals as *Education on the Air*, published by Ohio State University, *The Ohio Radio Announcer*, also published by Ohio State University, and *Educational Broadcasting*, published by the University of Chicago. There are also the annual Yearbooks of the Institute for Education by Radio (Ohio State University), the numerous publications of the National Advisory Council on Radio in Education, New York City, and the annual bulletin of the American School of the Air.

Favorable Effects of Radio. In contrast to the many community factors which tend to break up home life, the radio has often been considered a factor for strengthening home life. Eisenberg,²⁹⁶ listing certain favorable influences exerted by the radio, points out that the radio has tended to provide amusement in the home and has, therefore, influenced people to spend more time in the home. Family programs have tended to increase respect for marriage and family life, educational programs for homemakers to improve the quality of homemaking skills, those for parents have tended to develop more intelligent parental practices. Eisenberg also lists as advantages the fact that certain programs encourage constructive recreational activities and hobbies and thus tend to widen skills and interests of both children and adults. In addition to this, the quality of diction of most announcers and of most programs has tended to increase the versatility of vocabulary and to improve the quality of diction of children and adults alike.

NEWSPAPERS AND MAGAZINES

Comics Are Children's Dominant Reading Preference. The child's enjoyment of the sensational in movies and radio is reflected in his choice of newspaper material. In a survey of 2500 children in the fifth, eighth, tenth and twelfth grades, Brown¹⁴⁶ reports that for all grades and both sexes, the comics lead the list of newspaper readings by a wide margin. Less than 1 per cent of the fifth graders paid attention to foreign news. Encouraging to note, however, is the fact that by the eighth grade 23.7 per cent read foreign news; by the tenth grade 32.3 per cent, with a slight drop to 29.4 per cent in the twelfth grade. Apparently, school programs in current events, or some other influence, awakens some high school students to an

interest in world affairs. Political news also rose in interest in the tenth grade, where 40.3 per cent of the children read it. Editorials and signed columns, however, were practically ignored at all levels, being read by only 8.3 per cent even of the seniors.

Milton⁷⁰⁸ reports a study of fifty-one children in a remote rural school in which only one child, a six-year-old boy, reported that he did not read the funnies or have them read to him. All the children in the elementary grades in this study read funnies frequently. A wider study of 271 children, from grades one on through seven, showed only twelve who said they did not like the funnies. These children reported as the five most favorite comics, *The Katzenjammer Kids*, *Dixie Dugan*, *Tim Tyler's Luck*, *Tarzan* and *Peter Rabbit*. The next five favorites were *Joe Palooka*, *Dan Dunn*, *Tillie the Toiler*, *The Gumps*, and *Little Annie Rooney*. These children gave as their reasons for liking comics: one, that they are funny, and, two, that they are interesting and exciting. Milton reasons that comics are universally popular because they are universally accessible to children, and points out that parents and teachers themselves need to read the comics carefully, in order to understand "their children's most common reading experiences." Only thus can we understand the pattern of children's reading interests and hope to compete with present influences.

Witty¹⁰⁶⁹ studied the interest in comics of 334 children in grades four to six. He found, as Brown had, that comics were the most popular of all reading pursuits. The boys read many comic strips, and an average of four comic magazines *regularly*, and four more *often*. Girls read an average of one and one-half comic magazines *regularly*, and two and one-half more *often*. The most popular comic magazines with both boys and girls were *Superman* and *Batman*. Among the comic strips the most popular were *Dick Tracy*, *Smiling Jack*, and *Blondie*. He corroborated these findings in a wider study¹⁰⁷⁰ of 2500 public school children in Chicago and near suburbs. In the wider sample he found a slightly higher number of comic magazines known to children on the average, and a slightly smaller difference between boys and girls. The same magazines were still in the lead in popularity.

Josette Frank³³⁵ in writing about comic strip characters, points out that, even though children say they like funnies because they are funny, actually the comic characters are by no means comic. They are, rather, with few exceptions, "serious fellows, intent on dangerous adventure and noble deeds." Methods used by these characters for accomplishing the dangerous adventure and the noble deeds vary from magic, through fantastic, to pseudoscientific and "just plain violent" means. Motives for the behavior of

the characters vary from dedication to justice and war on crime, to personal quest of adventure. But, whatever the method and the motive, the end result is always that "good triumphs over evil, virtue is its own reward, and evil-doers are undone by their own foul deeds." Frank adds: "We have not come far from the morality of the copy-books, after all! The form is different—and how much more enticing!"

Apparently, children's reactions to comics are like those to the movie: young children are not interested in so-called "suggestive" themes; feminine allurements leave them cold. Frank, in a diligent search of a number of children's collections of comic books, found very few of the allurement, sex-suggestive type. Rather, she found *Superman* the most popular of the fantastic adventure type of comic, *Lone Ranger* the most popular Western, *King of the Royal Mounted* of the romantic adventure group, and *The Black Pirate* of the pure romance, chivalry type. *Little Orphan Annie* thrills children by the very ordinariness of herself and her dog, since children can feel identity with her and think "This might happen even to me."

Not All Effects of Comics Are Bad. Witty^{1069, 1070} has cited evidence which should serve to reassure adults about the effect of comics upon children. He studied the 10 per cent of children who read the comics most in one school, and contrasted these with the 10 per cent who read them least. He found their intelligences almost exactly comparable, the "most" group averaging 107 in I.Q., the "least" group 105. The general reading interests of the two groups were quite similar. Some of the individual children who read comics most had "rich, varied and generally commendable" reading programs.

R. L. Thorndike¹⁰⁰³ gives further reassurance about the effect of comics upon children. He studied the word content of the most popular four of the one hundred comics which appear monthly. These, by circulation, which runs into millions, proved to be *Superman*, *Batman*, *Action Comics*, and *Detective Comics*. Contrary to the usual idea that comics are largely pictures, he found that the actual average vocabulary count in each of these magazines was near 10,000 words. He concluded: "The child who reads a comic book once a month through the school year (and this represents a very moderate dosage), gets about as much wordage of reading as he gets from even the new fourth or fifth grade reader" (p. 110). Although a number of slang words were included in this wordage, the bulk of the vocabulary was straight English. Many hundreds of the words used were words which children need to encounter as they expand their reading vocabularies. He assured us that comics

do provide a substantial amount of reading experience at about the difficulty level of upper elementary school or even junior high school reading.

He added, however, that the word question of comics should not be the only matter to concern us. The content and ideas are also important. "Whether the comics provide exposure to a viciously distorted and unreal world, whether they merely provide a rather innocuous way of wasting children's time, or whether they provide a needed vicarious release for tensions and aggressions which are built up and unexpressed in the world of reality is a *vital* question. It is also a *moot* question. . . ." (p. 112).

Witty¹⁰⁷⁰ suggested that we should study the all-around recreation programs of children with a view to broadening recreational interests, and thus competing with the influence of bad comics and poor movies and radio programs. In the specific field of reading interests he suggested such competition to comics as *The Disney Readers*, *The Story Parade Adventure Books*, and *The New World Neighbors*.*

One outstanding attempt to compete with the comics on their own level is that of *The Parents' Magazine* in their publication, *True Comics*. This magazine, although far from as popular as *Superman* or *Batman*, proved so successful that it has been followed by two others: *Real Heroes*, and *Calling All Girls*. There is also a series called *Classics in Comics*† which is a comic book series attempting to portray such classics as *Huck Finn*, *The Three Musketeers*, *Don Quixote*, etc. Children like these very much. Here the attempt has been to reach the children who spend time and money on the newsstand comic magazines.

In spite of the reassurance which can be had from Witty's and Thorndike's studies we must recognize that typically the comics in the comic magazines are more lurid than those in the standard newspapers, largely, probably, because standard newspapers feel at least some pressure from parents and subscribers. The comics which cannot "make" the standard newspapers seem to drift into the comic magazines which apparently experience no control from adults but which, rather, deliberately appeal to the worst of childhood's appetite for adventure and morbid excitement. *Parents' Magazine* and the *Classics in Comics* have adopted the appeal of the color and setup of the "best sellers," but have presented substantial historical and story material. It is probably too early to predict the final success of these ventures but, to date, children

* *The Disney Readers* and *New World Neighbors* are published by D. C. Heath & Co.; *The Story Parade Adventure Books* by Grosset-Dunlap.

† Published by Gilbertson Co., 510 Sixth Ave., New York City 11, N. Y.

seem to gulp down authentic comics almost as avidly as they do less desirable subject-matter whenever it is presented entertainingly enough. Of course, one may argue that adults should not compromise in this way with artistic and interest standards. Certainly no thoughtful parent or teacher would be content to do nothing to improve reading tastes and interests of children, but there is something to be said for a realistic attempt to steal the child audience away from the current newsstand comic magazines.

Influence of Other Magazines. Magazine reading (other than comic magazines) seems to follow a different curve of interest from that found in newspaper reading, since magazine reading seems to command a somewhat more serious attention. Brown¹⁴⁶ reports magazine interest on the same group of children for whom the newspaper interest was reported above. Twelve per cent of fifth grade children reported that they read some magazine regularly, whereas 74.9 per cent of the seniors read at least one magazine regularly. *Popular Mechanics*, *Boy's Life*, western stories, detective magazines, and *The American Boy* were popular in the above order with children in the eighth and tenth grades in this study. Brown also reports that, although studies show boys and girls attending movies in about equal numbers, no movie magazine appeared in the first five choices of magazines for the boys, whereas movie magazines consistently ranked first in choice with the girls. *True Story* and *True Confessions* ranked high for the girls; western and detective stories for boys. One needs only to look at the assortment of twenty to thirty movie magazines, of fifteen to twenty westerns, twenty to thirty true confession types of magazines on any large magazine stand to appreciate the tremendous consumption of such magazines. Young people between fifteen and twenty-five buy more of them than any other age group. We seem to need some sort of action here on the part of adults comparable to the actions which have done much to clear up and improve movie and radio offerings.

OTHER RECREATIONAL ACTIVITIES

Brown extends his discussion of the recreational activities of young people beyond that of newspaper and magazine reading. He reports a study⁵¹⁵ of the recreational activities of thirteen communities scattered all over the United States, noting that in this study the home proved the preponderant place in which leisure time was spent. For young men community centers, parks and playgrounds were second, but for young women commercial amusement places were second. The school ranked fifth in the total, being only slightly more important than the street as a place

of recreation. It would seem from this that the school is missing an opportunity to influence the lives of its high school students. This same study indicates that, although the church is making excellent attempts to provide for the recreational life of its young people, in these thirteen communities studied, its influence was not yet of great importance. There is also evidence that too much time is being spent by young people as spectators rather than as participants in sports.

Bell comments on youth's need for proper recreation as follows :

The United States has, with more or less justification, acquired the doubtful distinction of being the 'most criminal' of all the civilized nations of the world. In 1930 there were three times as many homicidal deaths per 100,000 people in the United States as in Italy, more than four times the number in Germany, and ten times the number in Great Britain. And in 1933 more than 40 out of every 100 of the criminals committed to federal and state prisons and reformatories were between the ages of 15 and 24. . . .

The need for more effective and comprehensive recreational programs in most of the urban and rural areas in the United States reminds us of Mark Twain's observation that everybody talks about the weather, but nobody seems to be doing much about it. So far as our data are concerned, this seems particularly true in farm areas, where one out of every five young men interviewed reported that his principal leisure time activity was loafing.⁸²

A report of the Committee on Youth Problems of the Office of Education³⁹⁰ indicates that the depression of 1929-1939 had a wholesome effect on general leisure activities, compelling young people to turn from commercial activities to the simpler and less expensive self-activated recreations, such as crafts and other creative outlets, dancing at home to the radio, picnics, playground sports, etc. W.P.A.-financed recreation programs probably had something to do with this, and with the development of libraries, museums, settlements and other recreational centers. As the W.P.A. programs were terminated many of these projects were taken over by the communities in which they were set up.

The spread of children's libraries in many cities and towns provides not only a place where children can read but books which can be taken home. Children's museums furnish a center for the development of educational and nature hobbies. Settlement houses^{5, 896, 1034} offer a club for underprivileged children where they have gymnasium and pool, game rooms, crafts, hobby groups, but mainly a place in which to meet friends away from the crowded and often sordid homes as well as off the streets and away from pool halls. Boys' clubs,¹²² not unlike settlement houses, have made a splendid contribution to constructive leisure. Boy Scouts and

Girl Scouts, 4-H Clubs, Y.M.C.A. and Y.W.C.A.'s are among some forty organizations serving youth in this capacity.^{24, 785} In fact, this is only an enumeration of the more widely known organizations. A preliminary report to the American Youth Commission of the American Council on Education listed no fewer than 330 national nongovernmental youth-serving organizations.⁷⁸⁵

Expenditures for public recreation have risen in this country from less than one million dollars in 1907 to nearly forty-three million dollars in 1934 and has continued to rise since then. This looks as if the public were giving youth a good deal. And so it is; but this expenditure seems wise in the face of current city and rural conditions which have placed young people in a position where commercialized recreation, slum living and temptation to delinquency are overpowering. During the war the situation changed from one in which young people could find little if any work, to one in which they were in great demand at high wages. Problems of bored unemployment changed to problems of unwise expenditure, of suddenly intoxicating amounts of money. What the postwar situation will finally settle into remains to be seen as this book goes to press. Whether the situation be one of unemployment, which may come again, or of too much money to spend, it seems evident that adults bear a heavy responsibility for providing wholesome recreation and for developing sound tastes in the use of leisure time.

A new trend⁴³⁰ toward making youth feel a responsibility toward earning their recreation and toward serving their communities seems a wholesome one. An opportunity for young people to feel needed and useful was an urgent necessity until the declaration of war and probably will be again in the future. It seems tragic that another world war, with its huge armies and mammoth war programs, proved to be the means of making youth of value to the community. Educators, clergymen, social and recreational workers must join parents in constant striving to provide some answer to the problem of youth which has arisen again at the close of World War II. This is an important phase of "winning the peace."

In this chapter we have seen that community factors outside of home, school, church and camp exert an extremely important influence upon child growth. Parents and teachers are accustomed to thinking of the importance of the factors discussed in Chapter V; they are less familiar with the ones discussed in this chapter. Group social work and recreation programs, as well as the work done by juvenile courts and other social agencies, are contributing much to child growth. Not until all of these agencies can work in close cooperation with parents and teachers will we achieve the best that child development can contribute to children.

QUESTIONS FOR CLASS STUDY

I. Survey your community (either the one you are now in, or your home community) in order to learn what facilities there are for: (1) Examination and care of children's health. (2) Minimizing accidents and spread of communicable diseases. (3) Educating children in physical hygiene and good health habits. (4) Wholesome recreation outside of school hours for (a) young children, (b) pre-adolescents, (c) adolescents. (5) Provision of adequate fresh fruits and vegetables the year around at reasonable prices. (6) Locating and caring for crippled children, subnormal mental cases, especially gifted children, children with special sensory defects, epileptics, and other children needing special education and attention. (7) Control of movie programs, particularly on Saturday afternoon; control of radio programs, particularly between three and eight o'clock in the afternoon. (8) Library services to children; public concerts for children; opportunities for development of interest and ability in art; and the development of other interests and abilities which enrich living by providing constructive use of leisure time. (9) Detection, correction and prevention of delinquency.

II. What provision does your community (either the one you are now in, or your home community) make for: (1) The care of dependent children? (2) Providing aid to widowed mothers so that they can maintain homes for their children? (3) Solving problems of marital difficulties and keeping families together? (4) Guiding adolescents toward a wise choice of mate and success in establishing homes and rearing children? (5) Bringing together parents, teachers and other community workers interested in the welfare of children so that they may work together effectively on general plans and on individual cases?

III. Visit a newsstand that carries comic magazines, and get a collection of these magazines for study. Summarize these, along with the comic strips in your daily papers, listing both good and bad influences they might have upon children.

IV. Listen to the radio programs available to your community between four and eight o'clock P.M. Discuss those programs to which children might be listening, for possible effect upon children.

V. Investigate the current literature (from 1945 on) for material about the effect of community factors upon child growth and development.

VI. Select several case studies from Davis and Havighurst on the selected reading list. Present them to the class for discussion.

SELECTED READINGS

- American Youth Commission: *Youth-Serving Organizations*. American Council on Education, Washington, D. C., 1937.
- Brown, F. J.: *Sociology of Childhood*. Prentice-Hall, New York, 1939, Chaps. XVI-XX.
- Charters, W. W.: *Motion Pictures and Youth: A Summary*. Payne Fund Studies, The Macmillan Company, New York, 1935.
- Davis, A., and R. J. Havighurst: *Father of the Man*. Houghton Mifflin Co., Boston, 1947.
- Landis, P. H.: *Adolescence and Youth*. McGraw-Hill Book Co., New York, 1945. Chaps. IV, VI, and XV through XVII.
- National Society for the Study of Education. Yearbook XLIII. *Adolescence*. Dept. Educ., Univ. Chicago, 1944. Chaps. X, XII.
- Plant, J. S.: *Personality and the Cultural Pattern*. Commonwealth Fund, 1937. Chaps. V, VIII.

- Sanders, B. S.: *Environment and Growth*. Warwick & York, Baltimore, 1934.
- Whitehouse Conference on Child Health and Protection: *Growth and Development of the Child*, Part I, General Considerations. D. Appleton-Century Co., New York, 1932.
- Turner, C. E.: *Personal and Community Health*. C. V. Mosby Co., St. Louis, 1939, Part II.

7. GROWTH AND USE OF THE BODY:

Physical Growth

We have given evidence to show the interrelation between physical and mental growth. A child truly is "... a compound of tissues, organs, fluids, and consciousness."¹⁹¹ He is not an aggregate of separate independent parts but rather a whole to which each part contributes and in which each part is intimately affected by other parts. The ability to adapt oneself to change within and without the body, to combat disease or deprivation, to meet new and difficult situations, is the result of activities of all parts of the body. This adaptive function is necessary for the optimum development of an individual both mentally and physically. In order to understand how a child adjusts to his internal and external environments it is necessary to have some understanding of his physical development.

GROWTH IN SIZE

The Pattern of Growth in Height and Weight. The general principle that growth does not proceed at an even tempo applies to growth in height and weight. The curve for height is like that for weight on page 8 which indicates two periods of rapid growth separated by one of slower growth. The first period of fast growth occurs in infancy; the second period of accelerated growth, known as the pubescent spurt, is closely associated with approaching sexual maturity and is under endocrine control.* Following this second spurt, growth in height slows down and finally ceases at maturity.

The child who has reached school age is already in that middle period of slower growth. During the elementary years his gain in weight (Figure 24) increases in momentum slowly each year until it reaches a peak at twelve years for girls and fourteen years for boys. After this time, growth in weight slows up and finally ceases. In height (Figure 25) the child has been growing less each year until nine years if a girl and eleven years if a boy.

See discussion under endocrines.

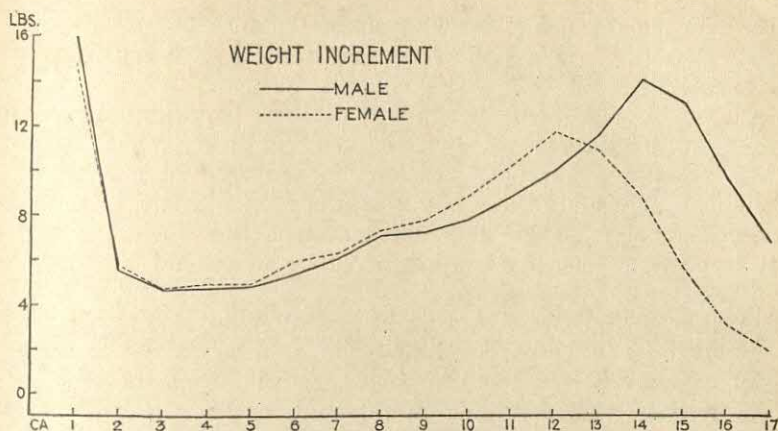


Fig. 24. Annual mean increments for weight for boys and girls. From Simmons K. The Brush Foundation Study of Child Growth and Development. II. Physical Growth and Development. Mono. Society for Research in Child Development IX, No. 1, Society for Research in Child Development, National Research Council, Washington, D. C., 1944, p. 44.

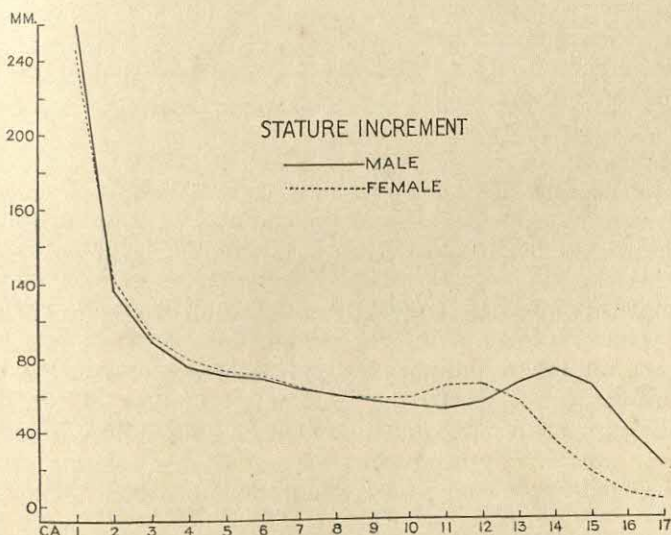


Fig. 25. Annual mean increments for standing height for boys and girls. From Simmons, K. The Brush Foundation Study of Child Growth and Development. II. Physical Growth and Development. Mono. of Society for Research in Child Development IX, No. 1, Society for Research in Child Development, National Research Council, Washington, D. C., 1944, p. 43.

Girls grow faster from nine to twelve years; boys grow faster from eleven to fourteen years. Growth then slows up and stops.

The slowing down and leveling off of the rate of growth suggests that this is a period of consolidation of earlier gains and a breathing spell before the changes incident to pubescence begin. Observations of the growth of Iowa children lend some strength to this surmise. Between ten and eleven years, Meredith⁶⁹¹ found a conspicuous drop* in the rate of growth for height, weight and other body measurements with the exception of measurements of skin and subcutaneous tissue which increased. It is possible that these stores of subcutaneous fat are drawn on later in the pubescent spurt.

The pubescent spurt in height according to Boynton¹²¹ and Meredith⁶⁹¹ can be expected to begin anywhere from eight to fourteen years for girls and from eleven to sixteen years for boys. The average girl, according to Boynton, has her year of most intensive growth in height at twelve, the average boy, according to Meredith, at fourteen. These figures agree with those of Simmons⁹²⁸ and Shuttleworth.† Following this spurt many children have a brief "filling out" period since the pubescent spurt in weight begins a little later and reaches its peak point after that of height. During this time girls may gain seven times more weight than during their prepubescent years.⁹²⁷ The maximum gain in weight as found in the studies of Shuttleworth⁸⁹⁵ and Richey,⁹²⁵ generally comes about six months or one year later than the maximum gain in height.

Growth in height generally ceases somewhere between sixteen years and the early twenties.‡ Growth in weight for the average adolescent probably stops sometime in the early twenties, although some girls reach their adult weight as early as sixteen years of age.²⁷⁰

Relation of Growth in Height and Weight to Sexual Maturity. The rate of growth in height and in weight are related to progress toward sexual maturity as measured by menarche (first menstruation) in girls, by the appearance of secondary sex characteristics, such as pubic or axillary hair in boys and by maximum growth rates in boys and girls. Several studies relating growth to these pubescent changes have been done of which Dimock's²⁷²

* Stolz in the California Growth Study similarly found a drop in the rate of growth between eleven and twelve years in the body measurements he studied.⁶⁸⁴

† According to Shuttleworth⁸⁹⁵ the average age of maximum growth is 12.56 years for girls and 14.8 years for boys.

‡ According to the Baldwin-Wood Tables the average girl stops growing in height at sixteen and the average boy at eighteen years. Brush Foundation figures⁹²⁸ give fifteen to twenty years for boys and fourteen to eighteen years for girls. These Cleveland children can be considered above average economically and socially. See also Bibliography.^{269, 270}

on boys, Simmons and Greulich⁸⁹⁷ on girls, and Shuttleworth's^{895, 927} and Richey's⁹²⁵ on boys and girls are noteworthy. According to these studies children of the same chronological age who are farther advanced toward sexual maturity are taller and heavier than those who are maturing more slowly. Figure 26 illustrates this difference in size that accompanies difference in degree of sexual maturity. While all three boys are fourteen years of age, the one at the left is physically still a boy while the one at the

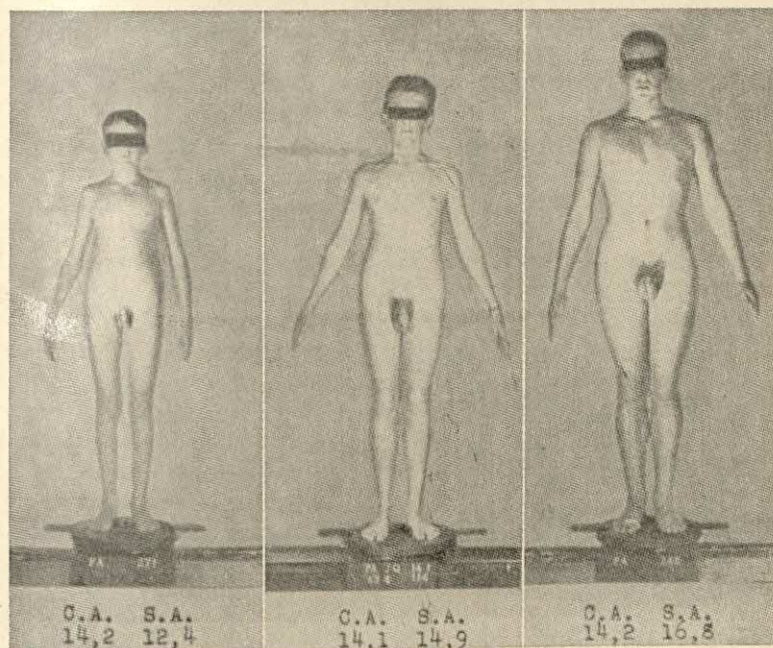


Fig. 26. Three fourteen-year-old boys who differ in degree of sexual maturity and size. (Greulich W. W., et al.: *Somatic and Endocrine Studies of Puberal and Adolescent Boys*. Mono. National Research Council, 1942. Wash., D. C.)

right is a man. In Dimock's study among the fourteen-year-old boys, the postpubescents were 4.6 inches taller and 22.6 pounds heavier than the prepubescents. In the Richey study the average twelve-year-old girl who menstruated before her thirteenth birthday was 4.34 inches taller and 24.58 pounds heavier than the average girl who did not menstruate until she was at least fourteen years old. That faster growth is associated with earlier menarche is demonstrated in Figure 27. When curve A, which represents the growth in height of girls who menstruated before eleven years

and six months is compared with curve H which represents girls who menstruated after fourteen years and five months, it is easy to see that the growth in height of girls represented by curve A is faster (steeper slope) and the period of growth is shorter than the growth in height of girls represented by curve H.

The beginning of the pubescent spurt of growth and its peak are closely timed with age of first menstruation.* Shuttleworth⁹²⁷

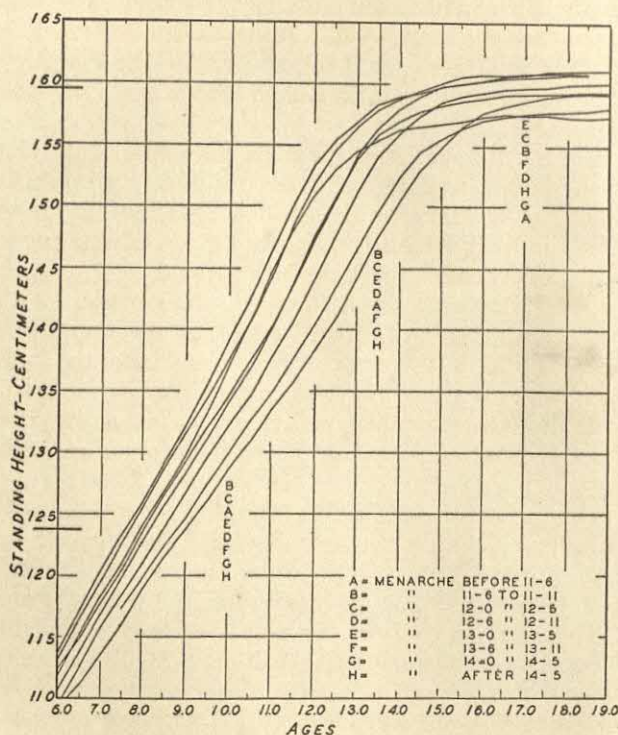


Fig. 27. Growth trends in average standing height for each of 8 groups of cases menstruating at different ages. (Shuttleworth: Monograph of the Society for Research in Child Development, Vol. II, 1937, National Research Council.)

found that the initiation of the period of rapid growth in height generally occurs sometime between two and one-half to three and one-half years before menarche and the year of most rapid growth sometime within the two years preceding menarche. For example, according to Shuttleworth, girls who menstruated for

* On the basis of the close correlation between menarche and maximum growth, Shuttleworth⁸⁹⁵ believes it is possible that the beginning of acceleration in boys is also timed with significant stages in the process of sexual maturation.

the first time at eleven years had their year of most rapid growth in the preceding year between their tenth and eleventh birthdays. Those who menstruated for the first time at fifteen years, however, had their most intensive growth between twelve and one-half and thirteen and one-half years. Some of the later maturers show relatively little acceleration through this period. Boys, according to Dimock²⁷² and Richey⁹²⁵ have their greatest gain in height at about the time they attain puberty.

The greatest gains in weight come at a time very close to puberty. For example, the average girl in the Shuttleworth⁸⁹⁵ study had her greatest gain in weight about three months before she began to menstruate.

This relationship between progress in sexual maturation and progress in height and weight indicates that the maturity of a child must not be disregarded when evaluating his growth.

Progress in Height and Weight. Let us take a hypothetical child and follow him through his elementary and secondary school years.* At birth this "average" child measures about 21 inches in length. At five when he enters kindergarten he will be about $43\frac{1}{4}$ inches tall, at thirteen when entering junior high $60\frac{1}{2}$ inches, and at fifteen upon entrance to senior high 65 inches. He a little more than doubles his stature between one month and six years and a little more than triples it between one month and eighteen years.

The average boy, according to Meredith,⁶⁹⁰ will gain 10 inches during the first year. In the second year he will gain five inches. From nine to ten years he will gain two inches, and from fourteen to fifteen years, the time of most rapid pubescent growth, 2.5 inches. This decided drop in the rate of growth in height in the first few years can also be noted in Figure 25. Even the pubertal spurt, of which so much is heard, is very small in comparison to the changes taking place in infancy.

This average boy of 21 inches at birth will weigh somewhere in the vicinity of 7 pounds. By one year he will have tripled his birth weight. At five years, when he enters school, he will weigh about $41\frac{1}{2}$ pounds. He will have acquired about one-third of his adult weight. At thirteen he will weigh 96 pounds and at fifteen years 121 pounds.

He can be expected to gain about 12 or 15 pounds during the first year. At five years he will gain about $4\frac{1}{2}$ pounds in a year,

* Figures for five-, thirteen-, and fifteen-year-old children for both height and weight are taken from Meredith⁶⁹¹ and Boynton.¹²¹ They represent children of higher-than-average socio-economic status living in Iowa. Figures representing average children would be somewhat lower.

at thirteen years about 11 pounds and at fifteen years about $7\frac{1}{2}$ pounds.

Progress in height tends to be more regular than progress in weight. In the latter children have more sudden spurts, more periods of no gain and sometimes even periods of loss. Weight is so much more variable because of its easy susceptibility to external factors. Because the environment contributes greatly to the evenness or the unevenness of progress in weight, those who are responsible for a child's environment in the home, school and the community, and for planning to meet his needs can do much to smooth or disrupt the even tenor of his progress in weight.

The factors influencing growth in size have been discussed in previous chapters. They include heredity which sets the limits of growth, endocrines which influence the pattern, and nutrition and general health which determine, in part at least, the degree to which the potentialities for growth will be utilized.

Individual Differences. It is obvious that all children do not grow alike. It has been mentioned previously that differences in height and weight are apparent between boys and girls and between children of the same sex.* Briefly, boys and girls generally gain about the same amount in height between four and ten years, and in weight between five and eleven years.⁹²⁸ Girls, then, during the pubescent spurt of growth have a temporary superiority over boys. Girls pass through their period of most rapid growth and reach mature size about two years before boys.†

Differences between children of the same sex‡ are illustrated by the three fourteen-year-old boys in Figure 26. Striking differences are not limited to the pubescent period but can be found at all ages. However, these differences tend to be greater at a period of more rapid growth.^{121, 691} Therefore, during the elementary years children can be expected to be more alike than during the late elementary and early secondary school years. During the college years or late adolescence the differences will be reduced.

As children grow their relative position as tall, short or medium, when compared with the average, tends to remain fairly constant, although the pubescent growth spurt sometimes is responsible for changes in a child's position in height. According to Meredith's⁶⁹⁰ study, during pubescence children may pass from the tall or short category into the medium group or some of the

* See Chapter 1.

† See p. 256.

‡ See discussion of slow and fast growing children in Chapter 1.

medium group may become either tall or short but short children do not become tall, nor do tall children become short.

Early and late maturing children have different patterns of growth in height and weight. Shuttleworth^{895, 927} found that children who mature early begin their pubescent spurt earlier, grow faster, complete their growth earlier but at maturity are not necessarily taller than late maturing children. This is illustrated in Figure 27. The late maturing children, on the other hand, begin later and grow more slowly but are not necessarily shorter at maturity. In fact, some are taller than those who mature early.* Therefore, later maturing children tend to catch up eventually with their faster developing peers. This may be a comforting fact to a child who is growing slowly and is concerned about it, and also to his parents and teachers. Shuttleworth also found that the superiority in height and weight of the early maturing children was evident in the early elementary years. The contrast in height reached a peak for girls at eleven and one-half or twelve years and in weight at thirteen years of age. At these ages the early maturing girls, with an average menarcheal age of 11.8 years were 1.6 per cent to 15.6 per cent taller and 33.6 per cent heavier than the late maturing girls with an average menarcheal age of 14.2 years.

An understanding of these individual differences in height and weight and in the pattern of growth can aid an adult in understanding each child and in interpreting to him his own particular growth. Children need to be reassured that to be taller than their friends or stockier than their schoolmates does not mean abnormality. Especially during pubescence this need of reassurance of normality for fast or slow growing children is very real.† Children can be misjudged as over or underweight when their rate of maturing is overlooked. Shuttleworth⁹²⁷ states that height-weight-age standards applied to girls in their early teens have a tendency to rate late maturing girls as underweight and early maturing girls as overweight. Both physical and psychological harm can be done either by increasing or reducing the food intake of a child when such a procedure is not indicated by his growth pattern.

* Bayley⁷² found in the California Growth Study that late maturing girls (maturity based on skeletal age), while short in the early years become the tallest group after fifteen years and six months. The late maturing boys tended to be smaller than the early maturing ones between twelve and sixteen years but they had not stopped growing. There was an indication that they would be as tall or taller than the early maturing group at maturity.

† See Chapter 1.

The Use of Height and Weight in Evaluating Physical Status and Progress. Height and weight are frequently used as criteria for judging the physical status and progress of a child. Such judgment is made by (1) comparing his height and weight to standards which represent the "average" child, (2) by comparing his progress (his gains) to that of other children and (3) by following his progress from month to month and year to year, and interpreting his progress in light of his constitution and his environment. There are a number of standards for the school aged child which include such tables as the Baldwin-Wood Tables,⁵¹ Brush Foundation Norms,⁹²⁸ Fels Institute Norms,⁹³⁴ and the Pryor Tables,⁸²⁰ which take into consideration body build by including chest and hip measurements, and the Faber Table³¹⁰ for weight which includes a range of weight for age and height. The effectiveness of the use of standards in evaluating physical status depends to a large degree upon the selection of the particular standard and the interpretation made of the comparison. All standards take into account sex differences by having separate tables for boys and girls. Different standards represent different groups of children, children of different hereditary and environmental backgrounds. The standard selected should be appropriate for the particular child. The interpretation of the comparison should make allowance for individual differences. The second method of comparing a child's progress with that of other children must also be used with discretion. Differences in the rate of growth at similar ages, pointed out earlier, must be considered if a sound judgment of a child's progress is to be made. The third method, that of comparing the child with himself from time to time eliminates the possibility of any inappropriate comparisons. A judicious combination of following a child's progress and comparison of it with a norm is a satisfactory procedure.

The Wetzel Grid¹⁰⁵⁰ (Fig. 28) is a device for evaluating growth in height and weight.* When height is plotted against weight the point falls in one of a series of parallel channels which represent physique. If it falls in one of the channels to the right of the middle, the child is of slender build; if it falls to the left, he is of stocky build; if it falls in the middle he is of average build. The extreme right represents poor physical status; the extreme left represents obesity. The plotting of successive measurements reveals the direction in which the child is growing. Healthy development continues along one channel. If the curve proceeds more steeply than the channel, and thus moves to the left, it indicates a change to a more stocky physique, leading ultimately

* Two other methods for evaluating progress in height and weight are The Jackson and Kelly Growth Charts⁵⁰⁴ and the Fels Composite Sheet.⁹³⁴

to obesity. If, however, the curve proceeds less steeply than the channel, and thus moves to the right, it indicates a change to a more slender physique and a loss in nutritional status.

Each point is located not only in a channel but also on a level which is indicated by one of a series of parallel lines crossing the channels. The point indicates how far the child has progressed along his channel. These points, or developmental levels, as Wetzel calls them, are then plotted against chronological age at the right of the grid. The resulting curve, or auxodrome, tells

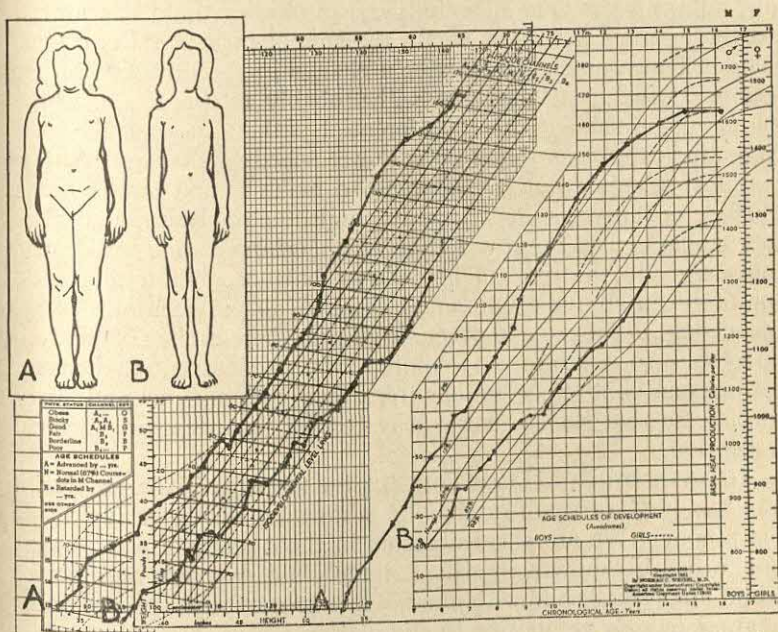


Fig. 28. Progress of a stocky girl (A) and a slender girl (B) recorded on the Wetzel Grid, showing differences in build, changes in physical status, and differences in speed of development. (Copyright by Norman C. Wetzel, by National Education Association Service, Incorporated.)

the speed with which the child is progressing. A healthy child's speed is about twelve levels a year or one a month throughout the ten to fifteen school years. The child's curve will be expected to parallel one of the auxodromes. The particular auxodrome he parallels will depend whether he is on a slow, average or fast schedule.

Figure 28 illustrates the use of the Grid. The height and weight of two girls are plotted, one from five to sixteen years, three months, and the other from five years, four months, to thirteen

years, six months. Girl A has always been stocky and for a time became overnourished* but has returned to the A channel which undoubtedly is her "preferential path." The shift to the left may have been the result of a number of factors, namely, too much food, too little activity, a temporary emotional disturbance and, perhaps, a slight hypothyroidism. Her return to her channel followed a correction of these imbalances. The curve at the right indicates (1) that her schedule was faster than that of most children; (2) that it was steady except for a shift between eight and fifteen years. The other girl (B) of slender build has moved to the extreme right, out to B₄, the area of poor physical status. The last measurement indicates a change in the direction of her curve. If that continues, she will probably return to B₂, which is, in all probability, her "preferential path." The curve at the right indicates that she is on a slower schedule than girl A. She has lost schedule but is beginning to make it up. Girl B has a history of illnesses, small appetite, and much activity. Recently, her appetite has improved. She is an example of a child who has been "in the red" in her energy balance. This grid should be useful in studying individual children, in public health work, in schools, in camps, and other situations where groups of children assemble, to separate out children who need attention because of unusual build or deviations from their own channel and auxodrome, so that such children may receive the necessary medical attention.

Growth in Size Has a Qualitative Aspect. To know that a child is large or small or that he is growing slowly or rapidly is not enough. We are also interested in the quality of tissues that make up this growth in size. A large child may not be a better child, for a small child with muscles firm to the touch and promptly and adequately responsive to stimulation and with straight bones that contain a good store of minerals will have the advantage over a large child with flabby muscles and poorly mineralized bone. An increase of a pound in weight may mean that a pound of good muscle or a pound of poor muscle or a pound of fat only has been added. It may also mean a preponderance of the growth of one tissue over another.† The same increase quantitatively

* By overnourished we mean an excess of intake over output of energy.

† Stuart and his co-workers at Harvard^{229, 248, 269} and Reynolds at The Fels Institute^{280, 281} have established technics to study differential tissue growth through the use of X-rays of the leg. Thus the relative amounts of skin and subcutaneous tissue, bone and muscle of the leg can be ascertained. It is hoped that the knowledge of the differences in the relative amounts of the various tissues among children will lead to further understanding of differences in physical status, physical performance and behavior.

will probably be qualitatively different for the infant and adolescent because of the progressive modification of the body with age. For example, much of the increase in infancy is due to growth of the brain and vital organs; much of the increase in adolescence is due to growth of bones and muscles. In the remainder of this chapter we will discuss some of these qualitative changes.

Changes in Body Form and Proportions. It is obvious that small children differ from adults not only in size but also in body form. The characteristic baby is chubby with a pleasant roundness evidenced by the proverbial dimples at the elbows and knees. As he grows the child loses this chubbiness and gradually assumes the characteristics of the family pattern of body form.* In the process of growing up changes occur in the contours of his head, his body or trunk and his legs and arms. Without the aid of measuring instruments we can see that the baby's head is large and his legs and arms are short in comparison with those of an adult; that he has relatively narrow shoulders and hips. The growth patterns of the various parts of the body, with the exception of the head, which completes most of its growth before the school years, follow the same general trends and, on the whole, have similar sex differences and similar differences between early and late maturing children as do growth in height and in weight. The differences in the growth of parts of the body are primarily in the timing of the changes in their rates of growth and their tempo. The proportions of head, trunk and legs change during the growing years. The head changes from one-fourth of the total length at birth to about one-sixth at six years and about one-eighth at maturity. Legs change from about three-eighths of total length at birth to about half the total length at adulthood. Legs increase in length almost five times from birth to maturity, head twice and trunk three times.

The pubescent spurt of growth does not occur simultaneously for all parts of the body. Shuttleworth⁸²⁷ found that the majority of girls have their most rapid leg growth before the most rapid growth of sitting height† and width of chest and hips.‡ This order is not followed by all girls. There are some for whom this spurt in legs and body coincide and others for whom the order is reversed. These partial measurements of length and breadth all have their spurt of growth within the year preceding men-

* With Sheldon's,^{878, 879} work the study of physique has gained new impetus. At the present time his method of studying physique and relating it to temperament has been applied only to male adolescents and youth. His technic needs to be applied throughout the growth period and to girls as well as boys.

† Sitting height includes head and trunk.

‡ Measured by chest breadth and iliac diameter.

arche. Shuttleworth⁸⁹⁵ found also that the patterns of growth for these various measurements are similar for boys and girls.

Bayley^{72, 73} has reported on the changes in build during the adolescent spurt of growth. Sex differences are noted first in girls whose rapid growth is accompanied by greater growth in the width of hips. The boys begin their spurt later but soon overtake the girls in the width of shoulders as well as in height. Therefore, girls become relatively broader-hipped; boys become relatively broader-shouldered. Difference in build of early and late maturers are greater among boys than girls. In boys the early maturers are typically broad-hipped; the late maturers tend to be slender-hipped and long-legged. In girls the only consistent difference between the two groups is a tendency for late maturers to be broad-shouldered. A longer growing period frequently emphasizes the growth of shoulders. It is interesting to note that in one ratio, that of hips to shoulders, early-maturing boys and late-maturing girls tend to have proportions which deviate slightly from the norm of their own sex toward that of the other sex. However, it cannot be said that early-maturing boys are characteristically more feminine or late-maturing girls are more masculine in their trends of growth.

The surface area¹¹⁸ of the body increases seven times from birth to maturity. The small child has a greater surface area in proportion to his size than has an adult, which means a greater proportionate heat loss for the child. This greater heat loss accounts, in part, for a relatively higher energy requirement in foods in the early years.

BODY FRAMEWORK

The frame of the body consists of the bones bound together by tough bits of connective tissue called ligaments to form the skeleton. To this skeleton are attached the muscles. Thus the bones and muscles serve as support in holding the body together and as protection for the organs of the body. The bones of the head protect the delicate structure of the brain so that pressures, bumps and blows from without, unless very severe, do not damage brain tissue. The bones of the chest protect the heart and lungs and the pelvis acts as a support for the abdominal organs. The working together of muscles and bones makes locomotion possible. The bones not only serve the function of a framework, and a protection for the more delicate body structures, but also are the seat for the manufacture of blood cells, and provide the body with a store of calcium which can be drawn on when other

parts of the body require additional calcium for performing their functions.

Differences between Infant's and Adult's Bones. It is obvious that children's bones are smaller than adults, and that their proportions and shapes are different. Less obvious, but even more important, are the differences in the composition of bones, which account for the softer, more pliable bones of the young child. In contrast to the bones of an adult, those of a young child contain proportionately more water and protein-like substances and less minerals. Thus there is a preponderance of cartilage and fibrous tissues in the bones during the early years of life. With such a predominance of these tissues over the more rigid bony tissue of later years the bones of young children are less resistant to pressure and muscle pull and therefore are more liable to deformity, as is noticed in the bowed legs and flat chests of rachitic children.

A young child's bones are not firmly knit together. There is much space between the ends of bones, and the ligaments at the joints are longer and less firmly attached than in the adult. This gives the child more flexibility in certain movements and contributes to that characteristic "double-jointedness" of early childhood which makes it possible for children to assume positions impossible for adults.

Their bones are also more vascular than those of adults. More blood is flowing through them to supply materials for growth and thus the bones are more predisposed to infection.

The outside covering of the bones, the periosteum, is thicker in young bone. This greater thickness prevents compound and complicated fractures. This, plus the softness of the bones, undoubtedly plays a part in a young child's relative immunity to serious accidents from falls.

How Bones Grow and Mature. Bones begin as connective tissue in the early days of embryonic development. This tissue is changed to cartilage, popularly known as gristle, a firm, elastic, translucent substance. The adult has some remnants of cartilage. The end of the nose and the outer ear bear witness to this fact. The patterns of practically all the bones are laid down in this cartilage. This cartilaginous foundation for the bones continues to grow until an individual reaches full size at maturity. Very early in development inorganic salts, chiefly calcium phosphates, are laid down in the cartilage and thus the process of ossification begins. The cartilage is thereby gradually replaced by bone. This process of ossification begins at a spot or spots called the ossification centers in the cartilage model. From this point (one

bone may have more than one center) the process spreads gradually throughout the bone. Each mature bone has a characteristic shape which gradually emerges as this ossification process continues. As bones develop, they increase in size and change from small spherical masses to definite, individual contours.

Bones grow in width by adding new bone at their outer edges underneath the periosteum, and they grow in length at the ends of the bones where a strip of cartilage remains throughout the years of growth. Adjacent to the ends of the long bones and separated from them by a strip of cartilage other bony masses appear. These are called epiphyses. The rest of the bone is called the shaft or diaphysis. When the epiphysis and diaphysis of a bone unite growth ceases.

Bone development can be evaluated by the study of an X-ray picture of the hand* of the child. The method which is used most generally is that of inspection and comparison with a standard X-ray picture of the contours of the ends of the bones and the epiphyses, the relative bone size, and the progress toward union of the epiphysis with the shaft of the bone. The standards most frequently used have been those of Todd†¹⁰⁰⁸ and Flory.³¹⁹ Skeletal development is expressed in terms of skeletal months or years. Todd¹⁰⁰⁸ emphasized the value of measuring progress rather than status. The child's progress in accord with his chronological age, rather than his deviation from the standard for his chronological age, is the object of consideration.‡

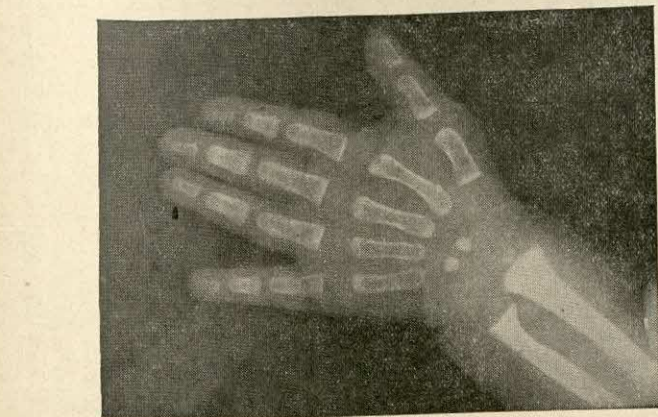
A new method§ has been devised to clarify somewhat the picture of skeletal maturation of the individual child by showing the spread of maturation of individual bones. Thus the bones which are ahead and those which lag behind in maturation are not obscured by an average of maturity of the various bones, such as skeletal age. This method is valuable in that it can be used to understand more clearly the relations of new bone formation to the child's health and to the kind of food he is receiving.⁶⁶⁹

* Changes in the bones of the hand have been found to be representative of changes taking place in other parts of the body.

† The Todd standard has been revised recently by Greulich and Pyle⁴⁰⁹ now in press.

‡ For example, a child in a period of twelve calendar months may progress twelve months in skeletal age. In such a case his progress in skeletal age is in keeping with his progress in chronological age. On the other hand, if he gains only four months in skeletal age during the same period, his skeletal growth is lagging behind. If his gain were fifteen months his bone growth would be progressing at an accelerated rate.

§ The Red Graph method is appearing in Greulich and Pyle⁴⁰⁹ and was demonstrated at the Fifth International Congress of Pediatrics, New York, N. Y., 1947.



Chronological Age 5 months
Skeletal Age 9 months.

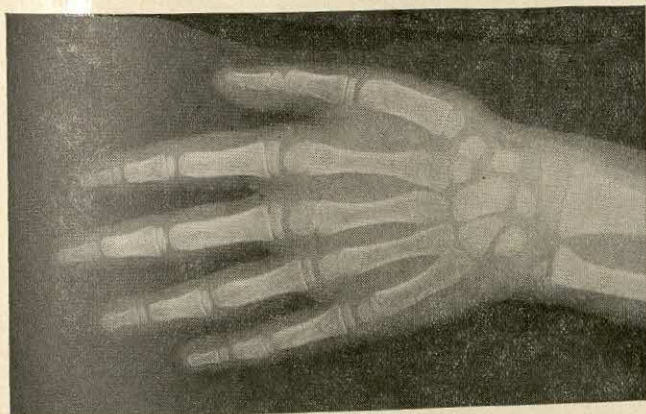


Fig. 29.

5 years 4 months
7 years.



17 years
over 16 years 3 months.

(Skeletal ages assessed according to Todd Atlas, which includes standards for the hand from 3 months to 16 years 3 months.)

Figure 29 illustrates the changes in the bones of the hand as a child grows. At birth a child has no epiphyses in the hand and no bones in the wrist. There are relatively large spaces between the bones. During infancy and the preschool years, wrist (carpal) bones and epiphyses appear usually in an orderly fashion. These bones grow considerably in size and are changing their shape. During the elementary years these changes continue and as the bones grow the spaces between the bones become smaller. The last wrist bone appears around nine years in girls and eleven years in boys. A sesamoid* bone which announces approaching menarche, since it appears within the two years prior to menarche,³¹² is observed in the hand of girls on the average between eleven and twelve years. It appears in the hand of boys on the average between thirteen and fourteen years.† Close to menarche another skeletal maturity indicator appears. The first union of an epiphysis and the shaft of a bone in the hand occurs generally shortly after menarche.¹⁶³ This final step in bone development of the hand, the union of epiphyses with shafts of bones, is finally completed for girls generally in their seventeenth year and for boys in their nineteenth year. Todd¹⁰⁰⁸ stated that the progress toward maturity may be retarded by long or repeated illnesses, severe malnutrition or unhygienic conditions. Also, certain disturbances in function of the thyroid and gonads may interfere with skeletal development.

The density of bone may vary from time to time during development. It has been found by many who have studied the consecutive X-rays of children that, in some children, there appear to be periods when the bones become less dense.‡ A period of such lessened density is not infrequently noted around eighteen months and again during adolescence. It is suggested that the decreased density in pubescence may be associated with the more rapid growth at that time and, therefore, the greater demands for minerals. If these minerals are not supplied by an adequate diet, the calcium stored in the bones is utilized for growth. A well-balanced diet with sufficient calcium, phosphorus and vitamin D is extremely important in the early adolescent

* Sesamoid bones are small, more or less round bones, unattached to other bones, embedded in tendons and usually located near joints. In Fig. 29 there is a sesamoid bone near the thumb joint in the seventeen-year X-ray picture.

† According to the Brush Foundation figures¹⁶³ this bone appears in the hand of girls at 10.1 ± 1.1 years and of boys at 12.6 ± 1.1 years. This difference between the findings of the two studies may be due to differences in the selection of the children.

‡ A less dense or less well mineralized bone is indicated by a lighter shadow in the X-ray film.

years. Certain behavior characteristics are known to accompany lightly mineralized bone.*

Bones register metabolic disturbances due to illnesses, allergies or severe gastro-intestinal disorders. These disturbances are noted by scars in the form of transverse lines on certain long bones which testify that growth has been interrupted. These disturbances were discussed in Chapter 2.

Children differ in skeletal development as they differ in their progress in height and weight, although the process of maturation is less subject to fluctuations than is that of growth. Individual differences are most noticeable in the early teens around pubescence. Children in high school, therefore, will be less alike in their skeletal development than in the elementary grades. Differences between girls and boys are present at birth and become increasingly greater. Upon entering elementary school, girls are approximately a year ahead of boys; upon entering high school girls are approximately two years ahead of boys.⁸¹⁹ These individual differences between children of the same or opposite sexes have implications for all adults who live or work with children.

Knowledge of the skeletal development of a child is helpful to adults in understanding him and in interpreting to him his development. Because skeletal age is closely related to the percentage of mature height, it is possible to predict, with fair accuracy, how far a child will grow in height, if his skeletal age and his height at the time are known.^{73, 75†} The concern which fast-growing girls and slow-growing boys register about their size can be relieved for the tall girl if she can be assured she will not grow much more and for the short boy if he knows that he still will add some inches to his stature.

Knowledge of the skeletal maturity of a child may aid in interpreting his scholastic success or failure, his mental development and his social adjustment, especially in the high school years when individual differences become intensified. A relatively mature or immature skeletal development accompanies a relatively mature or immature sexual development.‡ The effects of

* Todd reported: "So frequently do we find lightly mineralized bones in the highly strung child, who is prone to fatigue, restless, often very alert, irritable, poorly adjusted, apprehensive and fearful, with deficient powers of attention and concentration, that we have come to suspect deficiency in mineralization as the physical counterpart of this emotional maladjustment. But one should point out that one is dealing not with cause and effect but merely with two aspects of a constitutional handicap."¹⁰¹²

† Shuttleworth⁸⁹⁶ has also developed tables for predicting mature height, using the age of maximum growth as criterion instead of skeletal age.

‡ In the Brush Foundation Studies⁸⁹⁷ menarche occurred generally when girls reached a skeletal age of thirteen years.

sexual maturation on the interests and attitudes of boys and girls is common knowledge. Todd¹⁰¹³ commented on differences in the scholastic success of boys and girls in high school in relation to their skeletal development. In Cleveland twice as many boys as girls failed to qualify for transference into senior high. The average age for this transfer came at fifteen and one-half years. Boys at this age are similar in skeletal development to thirteen-year-old girls. He suggested that this difference in development may have been a contributing factor in the difference in school adjustment of boys and girls.

Among the children studied by Flory³¹⁹ the large, well-developed children were likely to reach skeletal maturity early and complete high school before the average child. Small, immature pupils

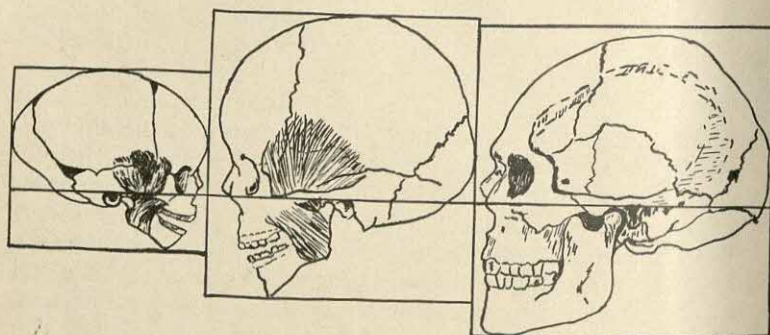


Fig. 30. Skulls of newborn, six-year-old boy and adult drawn in their natural proportions. (Brash, J. C.: *The Growth of the Jaws, Normal and Abnormal, in Health and Disease*. The Dental Board of the United Kingdom, London, 1924, p. 147.)

had a slower skeletal development and were late in completing high school.

Because each child has his own pattern of development and because the maturation of the skeleton is an important, though not an easily observable, part of the growing-up process, parents and teachers and all other adults closely associated with children must be warned that they may miss this significant feature of a child's growth.

Development of the Head. The relatively large head of the young child has been mentioned before. Not only does he have a larger head for his size than an adult but also the part of his head which holds his brain is large while his face is small. As he grows the facial part of the skull grows faster than the cranial portion and thus the face assumes more prominence. At birth

the relationship of face to cranium is one to eight; at five years it is one to five. Facial growth makes considerable progress during the school years so that the ratio is reduced to one to 2.5 at maturity. Figure 30 demonstrates these changes. Along with the more rapid growth of the face the features gradually assume their mature characteristics. The development of the skull is associated with the growth of other structures of the head, and these structures affect the growth of the skull at different periods. The brain and the eyeballs in infancy, the teeth during the eruption of the permanent teeth, and the muscles in later childhood and adolescence, have their effects upon the proportional growth of the head.

Development of Teeth. At the time of birth the twenty deciduous (baby) teeth and the first permanent teeth (six-year molars) are developing in the child's jaws. At this time both the enamel, or the outer portion, and the dentine, or the inner portion, are developing. The enamel is fully formed before the tooth erupts; the dentine continues to form until the root is completed, sometime after the tooth has erupted. The development of the deciduous teeth including the crowns and roots is completed between three and four years. The calcification of the permanent teeth begins at birth with the beginning of calcification of the first or "sixth-year" molars and continues through infancy, the preschool, and the school years. The third permanent molar or "wisdom" tooth does not complete its growth until sometime between eighteen and twenty-five years.* There are 32 permanent teeth.

Like bones, teeth can register various misfortunes in health during the growing years. Enamel is laid down regularly and rhythmically in layer after layer so that a series of rings† are formed, somewhat like tree rings. If this process is undisturbed these rings are regular. However, accentuation of these rings can result from nutritional disturbances and disease. If these disturbances are severe enough, they may produce lines which can be seen with the unaided eye. Any health mishap will be reflected, of course, in the particular teeth whose enamel is developing at the time. Permanent teeth will, therefore, reflect disturbances in infancy and the preschool years. For example, an imprint left by measles at three years of age may be found on a child's permanent incisors when they erupt. In addition to disease and poor nutrition, endocrine disturbances also can contribute to poor structure. The growing tooth, therefore, reflects through its

* Chronology of deciduous and permanent teeth from Kronfeld⁶⁰⁰ and Kronfeld and Schour.⁶⁰¹

† These rings are generally microscopic in size.

growing enamel and dentine the normal and pathologic variations in metabolism.⁸⁶² Materials that are necessary for the development of teeth of good quality are calcium, phosphorus, vitamins A, D and C.*

Eruption of Teeth. The appearance of the first tooth is an occasion of great rejoicing in the family. This first tooth is generally a lower front tooth which erupts at about six months. During the first two or three years the other deciduous teeth appear.† A quiescent period follows until about six years when the first permanent tooth appears. This tooth does not replace a first tooth but comes in behind the second molar. Because it may appear before the loss of any deciduous teeth, sometimes it is not recognized as a permanent tooth and is neglected. During, and even before, the eruption of this six-year molar, as the permanent teeth are developing beneath the deciduous teeth, the roots of the latter are gradually disappearing by the process known as resorption. When a permanent tooth is ready to erupt only the crown of the temporary tooth above it is left; the tooth becomes loose and drops out. When the child enters school, at six years of age, he may have all of his deciduous teeth but more often he has lost some of his front teeth which have been replaced by partially erupted permanent incisors. Perhaps he will also have his sixth-year molars. During the elementary years he will be passing through a stage of mixed dentition when he will have both deciduous and permanent teeth. By looking at Figure 31 it can readily be seen why Dr. Broadbent calls this the "Ugly Duckling stage." From six to twelve years the child goes through the process of replacing old teeth with new ones which, at first, look out of line but, with the correct order of eruption, are later pushed into place by the eruption of nearby teeth. Therefore, he acquires that mature look by twelve years of age. By that time he has all his permanent teeth except his "wisdom" teeth. Wisdom teeth sometimes fail to erupt because of failure to develop or because of lack of sufficient space in the jaw. An insufficient increase in the growth of the jaw during pubescence is probably responsible for the latter condition, termed "impacted teeth."

The sequence of the eruption of teeth, apparently, is more important than the age of eruption.^{1053d} Irregularity in the order of eruption may lead to an irregularity in the position or alignment of the teeth. An irregularity in the alignment of the teeth may

* For discussion of the effects of dietary deficiencies upon the oral structures see Schour and Massler.⁸⁶¹

† For time of eruption of deciduous and permanent teeth see Drenckhahn and Taylor.²⁸²

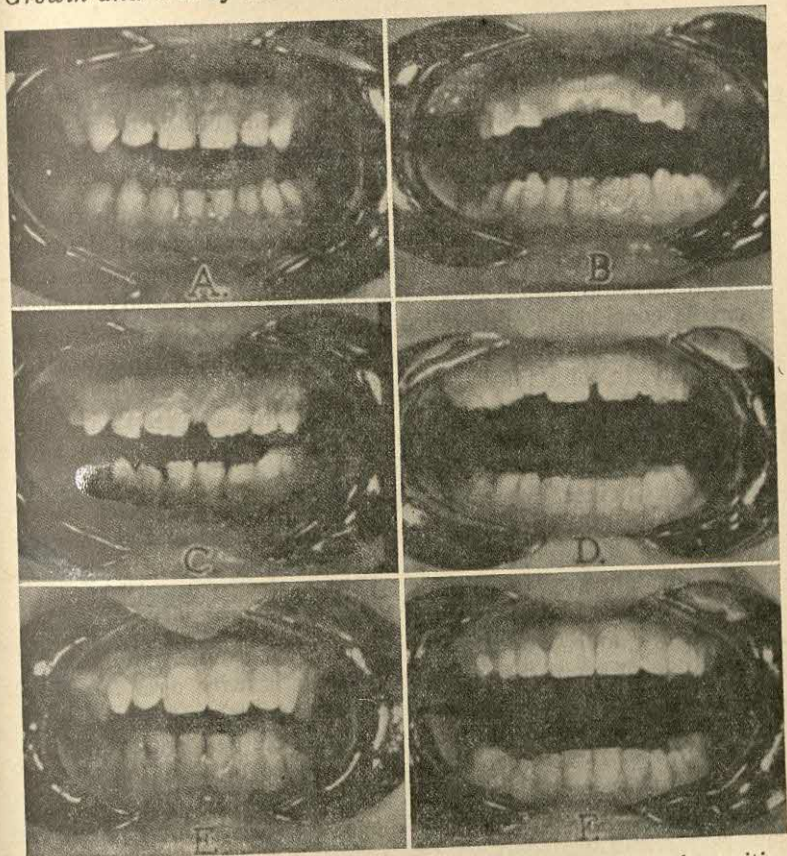


Fig. 31. Photographs of the front teeth of a child showing normal transition from deciduous to permanent dentition: A. At about 4½ years of age, showing spacing of deciduous teeth. B. At about 6½ years of age, showing loss of deciduous central incisors and eruption of lower permanent central incisors. C. At about 7½ years of age, showing eruption of permanent lower lateral and upper central incisors, space between and angle of upper central incisors. D. At about 8 years of age, showing eruption of permanent upper lateral incisors and beginning of closure of space between upper central incisors. The lower incisors are aligned by the action of tongue and lips. E. At about 10 years of age, showing further eruption of upper lateral incisors and closing of space between upper central incisors. F. At about 11½ years of age, showing eruption of permanent cuspids, and correction of the angle of the incisor teeth. (From Schour, I. and Massler, M.: *The Development of the Human Dentition*. Journal of the American Dental Association, 28; 1941, p. 1158.)

also be produced by a loss of a deciduous tooth before the corresponding permanent tooth is ready to erupt. The quality of the first teeth and their care and preservation become important

not only for the child's* immediate health but also for the sake of good occlusion later.

There is considerable individual difference in the time of the eruption of teeth. Because of this wide variability, there is no need for much concern when children are a little behind schedule. Girls generally cut their permanent teeth earlier than boys. It has been claimed that tall children, provided they are of the same race and economic group, are more accelerated dentally than short children.^{1053d} Mellanby⁶⁸⁶ has reported experiments that indicate a relationship between the state of nutrition and eruption. There is considerable difference between families in the time of eruption of children's teeth. In some families children cut their teeth early; in some families they cut them late. In other families one child may have an early eruption schedule and another a late one. Further investigation regarding the factors associated with the time of tooth eruption is needed.

Dental Caries. The largest dental problem in America today is that of dental caries. Surveys in various parts of the country indicate the wide scope of this dental disease. One of these surveys⁵⁸⁹ in Hagerstown showed that during the school years, between the ages of six and fifteen, children tended to acquire between one and two caries per year. The number of children having one or more decayed teeth increased with age from 12.3 and 19.9 per cent for boys and girls respectively at six years to 98.8 per cent for fifteen-year-old boys and 93.1 per cent for fifteen-year-old girls. Dental defects were the cause of rejection of 20.9 per cent of the men drafted for the armed forces of the United States in World War II.⁸⁵⁰ Unlike many diseases caries attack the rich and the poor alike.⁵⁸⁸ Klein⁵⁸⁷ has shown evidence of strong familial factors in susceptibility and resistance to dental disease. Certain areas have been shown to have a relatively low incidence of caries. The low incidence of caries in these communities as contrasted with other communities seems to be associated with the presence of minute amounts of fluorine in the water.^{257, 585, 586*}

Because of the damage which may result from tooth decay a great deal of interest has been shown in attempting to ascertain the cause of caries and thus take measures to prevent them. The question of why some children are susceptible to caries and other children are free from caries has not been answered com-

* Experiments have begun to test the effectiveness of adding fluorides to a city water supply in reducing the incidence of dental caries. Grand Rapids began a ten to fifteen year demonstration in 1944. The dental health of the children of the community will be studied throughout the period.²⁵⁴

pletely as yet. There is evidence* that fluorides play a role in reducing the incidence of caries. The physiological mechanism whereby they give some protection to the teeth, however, has yet to be ascertained. There is general agreement that diet is an important determining factor but there is disagreement as to the specific factors and how they operate. Diet may be related in two major ways: (1) through changes produced in the mouth, and (2) through the effect of diet on the resistance of the tooth. A critical examination of the evidence leads to the conclusion that both environment in the mouth and nutritional factors are important. It is generally agreed that decay is produced by the action of acid on the enamel of the teeth. This process, according to Bunting and his co-workers,⁵⁰⁸ is caused by the presence of *bacillus acidophilus* in the mouth, and is stimulated by a diet high in sugar.⁵⁰⁷ Candy, it has been found, can start caries in mouths of children formerly free from caries.^{507, 1045} Because of such findings, many urge that sugar be reduced to a minimum in diets. The evidence indicates the importance of diet during pregnancy¹⁰¹⁶ and throughout the developmental years.¹²⁰ Research demonstrates the importance of a well-balanced diet¹²⁰ with adequate vitamin D.[†]^{651, 652}

The effect of improving the diet on the incidence of dental caries has been demonstrated by Toverud¹⁰¹⁵ in Norway and by Mellanby and Coumoulos⁶⁸⁸ in England. Their surveys during the war years indicated a reduction in the incidence of caries.[‡] The probable cause in Norway was thought to be the reduction in the consumption of refined carbohydrates. The consumption of sugar, refined flour, candy and soft drinks was negligible. In England the authors attributed the improvement to the better nutritional status of the children. Milk had been made available at reduced cost at school. Margarine was fortified with vitamins A and D; bread was fortified with calcium carbonate. Pregnant and lactating women, and young children were given increased rations of milk, cod liver oil and fruit juice. The two interpre-

* Evidence comes from surveys of the incidence of caries in communities where fluorides are present in the water and in communities where fluorides are lacking in the water.^{257, 585, 586} and from studies in which fluorides have been applied to the teeth.^{593, 594} Children will benefit from the fluorides in the water only if they have it during the period of the development of the teeth or shortly after.⁵⁸⁶ In order to be effective, the topical application should be made shortly after eruption of the teeth.⁵⁹⁴

† A resume of the relation of nutrition to dental caries.⁸¹²

‡ In Norway between 1939 and 1944 among the six to seven year olds who were examined caries were reduced from 29.5 to 19.5 cavities per child. In London between 1929 and 1943 among the five year olds the percentage of caries-free children rose from 5 to 22.

tations of the results of the surveys represent the two views of the relation of food and dental caries.

In light of the present knowledge in order to protect the teeth from caries it would appear to be wise to assure children a well-balanced diet with emphasis upon the "protective" foods, adequate vitamin D and limited sugar.

In addition to an adequate diet the care of the teeth is important. Regular visits to the dentist will make it possible for him to detect and control caries at an early stage. The regular brushing of teeth is also important but not because such practice promises freedom from decay. It is a well known fact that the overpublicized statement, "a clean tooth never decays," is not true. The regular brushing of the teeth, however, does contribute to appearance and to dental health in that it aids in removing some of the food particles which adhere to the teeth, helps to keep the teeth clean, and also may improve the blood circulation in the tissues around the teeth.

Jaw Development. The development of the jaw is closely associated with that of the teeth. There is rapid growth while both the deciduous and the permanent teeth are developing and erupting. By the time the deciduous dentition has been completed, the pattern of the face has been established. After that time, any change in the face consists more or less of a proportionate increase in size rather than any marked change in proportions.¹⁴⁰ Growth of the jaw may be adequate, or again, too inadequate to allow for the proper placement of the teeth. If growth of the jaw at any time is inadequate, the teeth may not erupt, may appear in an unusual order or may force their way into too small a space, resulting in crowding or irregular alignment. Then again, jaws may grow more than is needed to accommodate the teeth and wide spaces between the teeth will result.

The growth of a normal face is orderly and symmetrical. Occasionally, however, one jaw may grow more rapidly than the other so that the teeth of the two jaws do not fit together properly: such a condition is designated "malocclusion." For example, the lower jaw may grow more slowly in width than the upper jaw, so that the grinding surfaces of the upper and lower teeth do not meet and the lower front incisors, or biting teeth, will be crowded and will not fit behind the uppers as they normally should. Figure 32 on the left shows good occlusion; on the right shows malocclusion.

Irregularities may be of the types that correct themselves during development, such as the normal sequence of the position of the teeth during the "Ugly Duckling Stage"; they may be

within the range of normal variation and thus not interfere with the function of the teeth; they may grow steadily worse. As in all aspects of growth, there are individual differences in the pattern of growth of children's jaws. It is, therefore, important that the growth and development of the jaws and teeth be watched carefully. A child at three or four years of age should be examined by a dentist trained in corrective work (orthodontics). Examinations should be made at regular intervals thereafter. The dentist will keep a record, note changes, and appraise growth. He should have an intimate knowledge of the growth of the jaws, the face and teeth, and knowledge of the proper methods used in appraising development. He will view growth changes

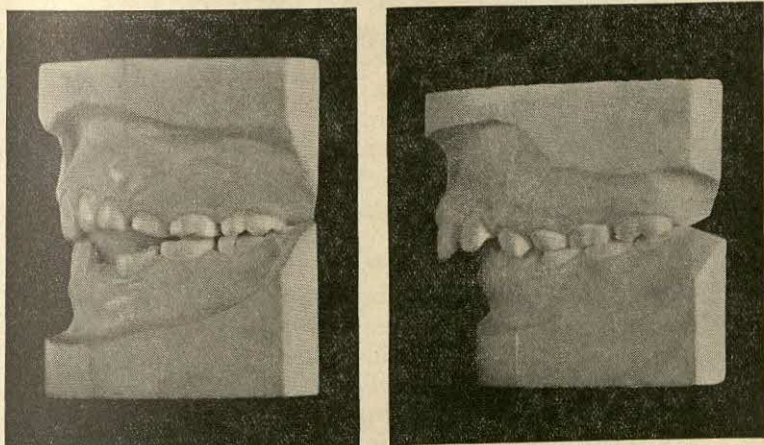


Fig. 32. Impression of teeth of 26 year olds showing good occlusion and malocclusion.

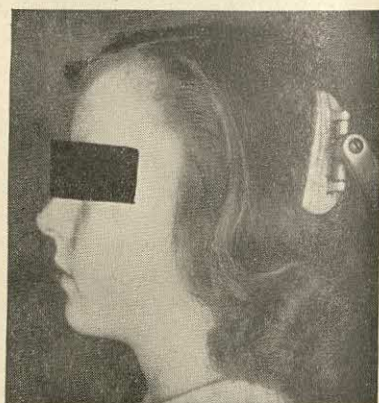
in the jaw and teeth in relation to the total development of the child. Sometimes it is necessary to assist nature by applying pressure provided by suitable bands or wire placed in the mouth. The jaw of the child is quite plastic, which makes adjustment possible. In correcting malocclusion it is important to see that the correction does not lead to poor facial proportions. Figure 33 shows two girls whose occlusion has been corrected but the correction of the one on the left has led to poor facial balance while that of the other on the right has led to good facial balance.

Whether occlusion will be good or poor is determined by the growth pattern of the jaws and influencing factors. It is not so much the result of either of these but rather the interplay of the two. For example, it has been said before that the premature

loss of a baby tooth may cause irregular eruption of the permanent tooth. Lewis⁶³¹ has found that premature loss may or may not be followed by malocclusion depending upon the stage of growth of the jaw at the time of the loss of the tooth. Congenital absence of teeth will retard the development of the jaw.¹³⁹ Sucking habits, such as lip and thumb sucking, have been demonstrated to contribute to malocclusion. Lewis and Lehman⁶³² found that in cases of malocclusion associated with thumb sucking the malocclusion continued and mastication was interfered with as long as the habit persisted. If the habit were broken before the child was five years of age, the child's teeth tended to resume their normal position. Self correction has been noted in children who have broken the habit as late as the tenth or eleventh year.



Poor facial balance



Good facial balance

Fig. 33. Good occlusion with poor and good facial balance.

The value of well-developed, symmetrical jaws, with teeth of good quality and good appearance is immeasurable in the school years and in adulthood. Such a condition contributes to the physical and mental health of the child and adult. The ability to chew well, and the absence of centers of infection aid in maintaining physical health. An attractive set of teeth and good facial contour increase one's self-confidence, and the proper alignment of teeth contributes to satisfactory speech.

The development of the jaws is stimulated by exercise; namely, sucking in infancy and later chewing. This exercises the muscles of the jaw and stimulates circulation.

Chest. At birth the chest is rounded, the shoulders are high and the neck is short. During childhood, especially between three and ten years, it broadens, flattens and the ribs change

from a more horizontal position to a more oblique one. The shoulders drop and the neck appears to lengthen. If the bones of the chest do not become firm enough to withstand pressures chest deformities may result which crowd the lungs. Such a condition may reduce the efficiency of the respiratory function.

Vertebral Column. The vertebral column or spine grows until the early twenties. It is a flexible rod which at birth has one curve. A curve at the neck appears when the child begins to lift his head. At the time of walking another curve, the lumbar, appears in the lower part of the back. These curves of the back are produced by the pull of muscles. With such a flexible rod, it can be understood how easily the spine can be twisted out of shape by unequal pull from opposing muscle groups. Such a state can develop through fatigue or habitually bad habits of sitting and standing. The flexibility of the spine decreases slowly with age, with the process of fixation (stiffening of the spine) beginning in childhood but proceeding very slowly into maturity.

Pelvis. The pelvis, consisting of the hip bones and the sacral bones, is relatively much smaller in the infant than in the adult. As children grow the pelvis increases in size, broadens and becomes less vertical. Growth changes of the female pelvis are especially noticeable during pubescence.⁴¹² During infancy and childhood the pelvis consists of a number of separate bones joined by strips of cartilage. The parts of the hip bone do not unite until about twelve years in girls and fourteen years in boys.¹⁰¹¹ The union of the sacral bones begins at eighteen years.⁴⁰² While the pelvic bones are still not united children and young adolescents should be protected from possible strains produced by carrying very heavy loads or standing for a long time without rest.

Extremities. At birth arms are longer than legs, but before growth ceases this relationship is reversed. The hand of the child differs from that of the adult not only in size but also in shape. The short, stubby fingers in the child's hand are due to slower growth of the last two bones of the fingers. These bones grow vigorously in the later years of the grade school period.

The legs of a newborn child are short and flexed and the soles of the feet are directed toward each other. As the infant grows his legs straighten. By the time the child enters school at six, his legs and knees should be straight.

Meredith^{690a} has summarized the research on the length of the foot. In the twenty years or so of growth the average boy's foot grows from 3.2 inches to 10.3 inches. Girls' feet are smaller than boys' feet,* and reach mature size earlier. Individual differ-

* Girls' feet are smaller than boys by 0.1 inch at birth and 1 inch at maturity.

ences increase with age from 1 inch during the first year to 2 inches at ten years and to 3 inches at adulthood.

The pubescent spurt of growth of feet, according to a study by Davenport²⁴⁵ tends to come about sixteen months after the spurt in stature, or as the author states it, a boy will usually go in men's shoes before he goes into men's trousers.

According to Robinow et al.⁸⁴⁰ the arches of the foot are well developed at a relatively early age, before five years, and the height of the arch varies considerably from child to child. Whether children they studied had high or low arches seemed to be determined by genetic factors. More information is necessary before judgment can be made about the relative value of high or low arches in resisting the strains of life.

Muscles. Muscles are responsible for all bodily movements, voluntary and involuntary. Attached to the skeleton, they make it possible for man to maintain an upright position, to change that position and to control his environment through the manipulation of matter.

Muscles are, in a most intimate and peculiar sense, the organs of the will. They have built all the roads, cities, and machines in the world, and, in fact done everything that man has accomplished with matter. If they are undeveloped or grow relaxed and flabby, the dreadful chasm between good and bad intentions and their execution is liable to appear and widen.⁴²⁶

Muscles are also involved in the movement of the organs of the body, movements which, for the most part, are unnoticed but which, nevertheless, are necessary for life. Thus, we breathe, the heart beats, food is digested, and that which is not used by the body is eliminated. Muscles control the removal of waste from the alimentary tract; they likewise are responsible for the elimination of urine from the bladder. These eliminative activities change in the young child from involuntary acts to acts controlled by the will. The muscles of the eye operate to produce binocular vision and depth perception. Facial muscles, attached to the skin, make the face mobile and give it the ability to respond to the outside world and, in turn, give some clue to others in solving the human equation. Speech, also owes its existence to the functioning of the muscles of the face and throat.

Muscles play a necessary part in maintaining posture. Attached to the bones by tendons (tough, fibrous material), they hold the various parts of the skeleton in place. The changes which take place in posture as children grow can be attributed, in part at least, to the activity of various muscle groups. Body balance, good or poor, is dependent upon the quality of the muscles and

their function. Thus, muscle tone, that condition of constant partial contraction, contributes to the mechanics of the body. The intimate relationship of bone and muscle makes it possible for muscles to contribute to the growth of the skeleton. This is particularly noticeable in the face, where the muscles used in mastication play a part in molding the jaw and in stimulating circulation.

Muscles increase in weight about forty times from birth to maturity. During infancy and preschool years, they grow in proportion to the increase in body weight but, between five and six years, muscles have a tremendous spurt in growth. In that year, 75 per cent of the weight gain is due to increase in muscle. After six years, the growth is more gradual. By twelve years, the muscles represent 40 to 45 per cent of the body weight, which is the same as that of an adult.⁵⁰⁹ The school years, therefore, constitute a period of rapid muscle growth.* This is evident, also, in the great interest in bodily activity, in the games children play and in the boasting of strength and the selection of leaders on the basis of strength and skill around eight to twelve years.¹⁶⁶

After birth, no new muscle fibers are acquired. Muscles grow in size by increase in length, breadth and thickness of fibers. The muscles also change in composition and in their attachment to bones. In comparison with adult muscles, the muscles of the very young child contain relatively more water and less solids and proteins. They are more delicate and less firmly attached. They are not completely under voluntary control. The awkwardness and inefficiency in movement in childhood are due largely to this fact. Small children are more easily fatigued but recover more rapidly than adults. Thus more frequent rest periods, interspersed between activities, are advisable during childhood.

It requires considerable action on the part of muscles to maintain any part of the body in a rigid position. With small children, keeping still is a real effort. Thus, sitting quietly cannot be expected to continue for very long. Standing at attention like soldiers is too much to expect of school children for more than the briefest intervals, especially in the elementary years. Fairly frequent change of activity is advisable so that other muscle groups will be brought into action and fatigue relieved. Fatigue lowers the efficiency of muscles for activity and for maintaining good body balance.

* This rapid growth points to the need of a diet liberal in protein. Stearns⁹⁴⁶ reports that a well-fed child achieves adult proportions of muscle to total body weight at eight years of age; a poorly-fed child achieves this amount when and if his protein intake permits.

There is considerable difference in children in their muscle equipment and efficiency. Some have broad, thick muscles which give them advantage in muscular strength; others have the type of muscles which make them agile and successful in activities requiring motor skills. Some children have muscles which fatigue especially easily.* Such differences are worthy of consideration in planning programs for children in the schools. The same child may differ in his muscular abilities at different times. After illness a child's muscle tone is generally lowered. More rest and less strenuous activity during the convalescent period, which usually extends beyond his return to school, will give his muscles an opportunity to recuperate from the effects of the illness and the period of inactivity necessitated by the illness.

The knowledge of the development of the muscular system is still limited. Progress in research in this field has been very slow, since considerable difficulty is involved in finding satisfactory technics for studying changes in the muscles with growth.

Physical Abilities. Physical abilities is a term used to designate the achievement in specific aspects of gross motor performance which can be observed through measurements of speed of bodily movement, strength of muscle groups, and coordinative skill. Two studies, one in South Africa† and another in California‡ have revealed some interesting facts.

Strength. Manual strength gives some indication of the strength of other parts of the body.⁶⁶⁵ Thus it is a measure worth studying. For boys⁶⁹¹ and girls⁶⁹⁸ progress in strength of grip is rather similar, with boys a little stronger than girls, until about thirteen years of age, after which the boys show decided improvement but the girls gain slowly and rather soon cease to improve. Girls have their spurt of growth in their thirteenth year and boys in their sixteenth year. Boys double their strength between six and eleven years and again between eleven and sixteen years.⁹⁰⁹ At the beginning of adolescence the relative strength of the hand is greater than that of the shoulders.^{548§}

* Krogman⁵⁹⁹ states that an X-ray picture of the hand of such a child will reveal "light" muscle shadows.

† Jokl and Cluver⁵⁴² measured the three components of muscular performance, skill, endurance and strength, by having children from five to twenty years of age run 100 yards, 600 yards, and throw a 12 pound shot put.

‡ In the California Adolescent Growth Study^{552, 553} children were given a battery of tests from eleven and one-half to seventeen and one-half years old. The tests included strength as measured by dynamometers and by tests which involved propulsion of the body, and motor ability as measured by the Brace test

§ At twelve years, for example, boys have attained 50 per cent of the hand strength they will have at seventeen and one-half years; 50 per cent of shoulder strength is not achieved until a year and one half later.

Increase in manual strength is related to gains in weight. According to Meredith⁶⁹¹ boys gain sharply in both strength and weight at thirteen years but the gains in strength are greater, accelerate more rapidly after twelve years, and are maintained a year longer than those in weight.*

Strength is closely related to the other growth phenomena of pubescence. Jones⁵⁴⁸ found that the spurt of growth in strength occurred in girls near menarche. For boys⁵⁴⁵ the beginning of this spurt occurred at a skeletal age of approximately fourteen years and came slightly after the appearance of kinky pubic hair,† before the peak of Phase II of pubescent development⁹⁵⁴ and about a half year before the maximum growth age in height.^{895†} Early and late maturers have differing patterns of growth in strength. In one study of boys⁵⁵⁵ it was found that early maturers were significantly stronger than the late maturers of the same chronological age.§ This superiority continued throughout the adolescent period. The lag in the puberal spurt of strength behind that of other physical measurements was more noticeable for the early than the late maturers. The late maturers, therefore, tended to be "as strong as they looked"; the early maturers were not as strong as their size implied. Jones,⁵⁵⁵ in commenting on this, points out that while the late-maturing boys, with their slower pattern of growth, may have a more closely synchronized physical development and thus escape some of the strains incident to rapid growth, the early-maturing boys, with their rapid and in some ways less well-integrated growth, often gain an early advantage in athletic competition and in associated prestige. Sex differences become conspicuous in the pubescent period.|| Jones⁵⁵⁴ reports that sex differences in static dynamometric strength¶ are relatively small until thirteen years of age, after

* Jones says: "Various writers have remarked that during adolescence the rate of functional growth in strength is greater than the rate of anatomical growth in cross section of muscle. We should not be surprised to find such differences, for strength is influenced not merely by muscular structure but also by neural development, by skeletal factors involved in leverage and by various nutritive conditions. No doubt a partial explanation of the prolonged growth of strength in boys is in terms of their greater activity and greater functional use of the new physical powers attained through adolescent growth."⁵⁴⁸

† Indication of pubescence, according to Crampton.²³⁴

‡ Dimock²⁷³ found that the greatest increase in strength came directly after puberty had been attained.

§ Dimock²⁷² also found this to be true. (See Chapter 8.)

|| Jokl et al.⁵⁴³ in their study of shotput performances found that, while boys were always stronger than girls, there was a fairly even progress for both sexes up to about eleven years of age. After puberty the rate of increase for boys was much greater than that for girls.

¶ Includes all measures of strength tested by dynamometers.

which differences increase rapidly. By sixteen years of age practically all boys are superior to the average girl. As in other phases of growth, girls are farther advanced toward their terminal strength than boys.* Jones concludes that the evidence regarding sex differences indicates that sex differences in strength have primarily a biological basis but, in addition, cultural expectations operate to increase motivation and practice in boys and diminish them in girls.

Endurance and Skill. Jokl and his associates,^{200, 542} in their study of endurance and skill found that in endurance, as measured by a 600-yard run, both boys and girls improved from six to thirteen years. This increase was about the same for both sexes. But after thirteen years of age the boys continued to improve, while the girls lost in efficiency, so that, between seventeen and twenty years of age, they were no better in their performance than the six to eight year olds. The decline in efficiency was noted not only in the running time but also in the condition of the girls at the end of the performance. The six-year-old girls recovered after two to five minutes. The ten year olds had a much longer recovery time. They felt more tired, breathing was more labored, and they were unable to talk for a few minutes. The fourteen year olds were uncomfortably tired, with forced respiration and frequently a pulse rate of 180. Their recovery time was even longer, for they did not attend to ordinary work for an hour following the run. The eighteen year olds were exhausted. Their recovery time was longer than that of any other group. For hours, and often for the rest of the day, they were weak, tired and incapable of doing any physical or scholastic work. This rise and fall in the physical endurance of girls and the difference in endurance between boys and girls in adolescence needs to be considered in planning physical activity programs for children.

In the 100-yard run, as a measure of skill, the boys showed a steady increase until eleven years of age, a distinct slowing down between eleven and fourteen years and another period of steady increase from fourteen to eighteen years. The girls improved steadily to eleven years. Beyond that age their skill remained stationary.†

* For example, in grip at eleven years of age, girls have reached approximately 60 per cent of their terminal strength; boys have reached about 45 per cent of their terminal strength.

† Shock⁸⁹¹ offers as a physiological reason for the relatively reduced physical performance of girls in adolescence differences between the sexes in the functioning of the circulatory system. In adolescence the increase in blood pressure in girls is less than in boys. Girls also, in comparison with boys, show a smaller rise in blood pressure after exercise.

Thus, pubescence in girls practically brought the developmental progress of physical efficiency to an end. In boys this period also had a profound but different effect. In them the rate of progress was retarded,* not stopped. The authors base their interpretation of the effect of pubescence upon the work done by Selye, who states that the organism possesses a certain amount of "adaptation energy" which is mobilized in various emergencies. No doubt pubescence and physical activity represent physiologic "strains" which are capable of taxing the adaptation energy of the body to the utmost. They conclude: "The fact that we can demonstrate, during puberty, a physiologic tendency toward slowing down or even toward a temporary or final interruption of the growth of physical working power must be interpreted as an important biologic hint: during puberty, unnecessarily strenuous activities, such as rigid drill, as well as other physical efforts which lay undue stress on the reserve energy of the body, must be avoided."⁵⁴²

Factors Influencing the Condition of Muscles. The condition of muscles depends upon the constitution of the child, plus the use that is made of them. Muscles respond readily to good physical care, including food, rest and activity. Satisfactory balance between activity and rest is essential for the well-being of the muscles.

Posture. Good posture, or good body mechanics, is good body balance. Good body balance is control and coordination of the movements of the body, so that movement is easy and graceful. The body is, in some ways, like a machine; its parts are accurately adjusted to one another. If all the parts bear their proper relationship one to another, body function can proceed effectively without stress and strain. If, however, some part of the body is out of correct position, there is additional wear and tear which lowers efficiency and may even, through inducing fatigue, affect feelings and attitudes.

Posture can be an index of physical or mental health. Lack of physical vigor results in poor musculature and hence poor posture. A healthy, energetic child, on the other hand, is likely to have a well-poised body. Posture can also be an expression of the spiritual and emotional tone of a child. The child who

* Other studies have noted similar changes in rate of growth at pubescence. Jones⁵⁴⁸ reported a lag in motor ability around a skeletal age of fourteen years. This was the time when most boys were becoming postpubescent. By fourteen and one-half years improvement occurred. Espenschade³¹⁹ demonstrated a lag in many motor tests between thirteen and fourteen years of age. Dimock²⁷² found a decrease in rate in the period when boys passed from prepubescence to pubescence, and preceded the period of most rapid growth in size.

feels inadequate gives himself away by his posture, just as the adequate child, full of enthusiasm for life, expresses his joy and enthusiasm through his body.

Good control of the body and its effective use in physical activities is dependent upon body alignment and the health and activity of the bones, muscles and nerves. The body is subject to the laws of gravity and, in order to maintain good posture with a minimum of muscular effort, the body must be arranged as nearly as possible symmetrically about a vertical line passing through the center of gravity. If a part of the body extends too far on one side of this line, it must be balanced by another part extending in the opposite direction. For example, a large abdomen may be balanced by hyper-extended knees.* In good balance the line of balance passes through the ear, the tip of the shoulder, the hip joint and a little in front of the ankle. Strong bones and firm muscles are necessary to maintain this position.

All muscles are arranged in pairs as antagonists. If one of a pair of muscles becomes stronger than the other, there is an unequal pull, and that part of the body becomes out of line. This happens, for example, in the case of forward shoulders when the muscles which pull the shoulders forward exert more pressure than those of the back. Thus, the relative strength of muscles is important, as well as muscle strength in general, and a diversity of activity is necessary to allow for exercise of the various muscle groups.

Sometimes there is a misunderstanding of what is normal and what is abnormal in posture. There is a tendency here, as in other aspects of a child's life, to fit him into a precise mold and, should he not conform to all its curves, to say that he has a postural defect. There can be no one standard for posture by which all children can be measured, for good body balance is not the same for all children. It differs from child to child, depending upon his build and upon his stage of development. A stocky child and a slender child will balance their bodies differently. Also, the same child will balance his body differently from time to time, according to his activity.†

Body balance changes as the child grows and learns to balance

* Hyperextension is a condition in which the knees are pushed back beyond their normal position.

† Because balance will differ according to the way in which the child is using his body, it is necessary to observe and evaluate how a child manipulates his body in all kinds of activity from sitting to activities requiring fine balance. Looking at a child as he stands in a laboratory is not enough. He must be observed in motion as well. Moving pictures of children, therefore, form a good basis for evaluation and education in body balance.

his body. (See Figure 34.) The progress which he makes, and the final degree of perfection attained, depend upon his potentialities plus the opportunities offered to him by his environment. The baby begins while lying on his back or stomach to "unroll" the "coiling" which has been his intrauterine position. He first learns to balance his head and then to sit erect. From that he progresses to standing, and finally learns to walk. The movements of stretching, reaching and kicking strengthen the muscles which will later assume a function in maintaining balance. Freedom of movement is, therefore, valuable for the young infant.

When a baby is learning to stand, he is very unstable and this instability continues into the preschool years. Every baby has bowed legs which, all other factors being equal, straighten in due time after he begins to walk. The toddler has knock-knees and some degree of pronation,* which, according to Sweet,⁹⁷⁶

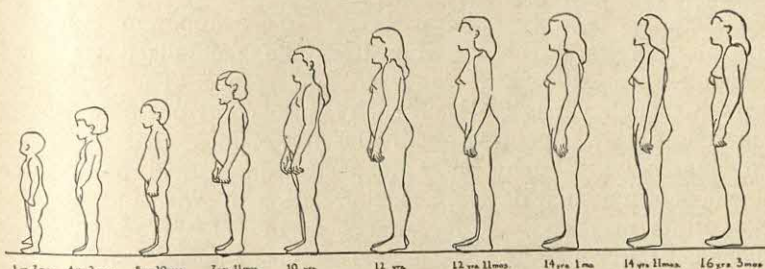


Fig. 34. The posture of a child from one year, seven months to sixteen years, three months showing changes in body balance accompanying growth.

increases until the child is three years old and thereafter gradually decreases so that, at about the age of six years, the knees have become straight and the pronation has greatly decreased. The young child has a straight upper back. He has a prominent abdomen because of the vertical pull of gravity coupled with the relative weakness of the abdominal muscles and the nature of his diet. In proportion to the prominence of the abdomen, a lumbar lordosis (exaggerated curve in the lower region of the spine) is present.

When a child enters school, while his knock-knees have probably disappeared and the pronation has decreased, in all probability

* Pronation: "In the pronated foot there is *out-toeing* . . . which throws the line of weight-bearing to the inner side of the great toe, and increases the strain on the ligaments and the fatigue of the muscles on the inner side of the foot. There is resulting prominence and sagging of the foot on this side below and in front of the ankle, and the heel is tilted outwards, that is, *everted*."⁹⁸⁶

he will still have a prominent abdomen with its accompanying lordosis. His head, neck and shoulders will be in good balance. The preadolescent child is extremely active and his balance is changing continually. The nature of his activity is very general, which probably is the reason for the relatively high percentage of good posture in this period.⁷⁸⁶

In the adolescent period between twelve and seventeen years of age, physical types become apparent, and posture reveals tendencies which become definite characteristics in adult life. The abdomen flattens, the back is straight. Instead of the forward tilt of the pelvis, it is tilted slightly upward in the front and downward in the back, due to the increase in the strength of the muscles of the abdomen and the buttocks. These changes can be noted in Figure 34. Adolescents may be graceful in action but awkward in repose because of the growing awareness of themselves and the social group.

Differences between children become more apparent because special interests direct activities from the generalized type in preadolescence to specific kinds in adolescence. The spurt in growth, which varies in its intensity, also contributes to these differences. It was pointed out in the first chapter that the fast-growing individual may show an awkwardness due to relative slowness of muscular development in relation to growth in height. Footprints may show a temporary sagging of the muscles of the foot. Girls may become aware of their breasts and try to conceal them by holding their shoulders forward. A tall adolescent may slouch to conform more closely to the size of his associates. All these conditions may be temporary or they may lead to permanent postural habits. On the other hand, there are many incentives to acquiring good balance. The desire to excel in sports, to be physically attractive and to perfect the motor abilities which contribute to social success all motivate the adolescent to learn good body balance. This period, therefore, is very important, and is the strategic time, both physically and psychologically, to emphasize postural correction and to teach the principles of good adult posture.

Postural defects may occur any time during development. Defects must not be confused with conditions associated with a particular stage of development. Such conditions may be a manifestation of development at one age but may remain to become a defect later, as for example, pronation, which is natural for the young child but should be outgrown. Conditions which demand attention at all ages are exaggerated natural curves of the spine, lateral spinal curves (scoliosis), chest deformities, flat feet, cramped

toes, and poor balance due to a general lowered muscle tone. Early recognition and treatment is important because of the greater plasticity of the bones of younger children and because the poor postural habits have not had time to become firmly established. A child will not outgrow a real defect in posture but rather learns to live with it. Sweet says:

... generally it is easier and more comfortable to rest and move with a deformity than against it toward correction, and in the young, growing child, with his elastic tissues and his great skill for learning new, substitute stances and movements, deformities, even though considerable, rarely cause sufficient discomfort to make their correction mandatory.²⁷⁴

Factors Influencing Posture. A sound, healthy body is the firm foundation upon which good postural habits are built. Such a body is dependent upon a number of factors which include sleep, relaxation, adequate food, good digestion, elimination, adequate clothing, play activities and interests, and good mental attitudes and habits. Most of the factors mentioned above have been discussed elsewhere in this book. It will suffice to mention some of the environmental influences, including clothing and equipment. Clothing can allow for freedom or can be restraining. Light, loose clothing permits freedom of movement. Clothes that are too heavy produce a strain on the shoulder muscles and may lead to postural defects. Shoes and stockings may affect foot posture. It is believed that many of the numerous foot defects of adults can be traced to improper shoes or stockings worn during childhood.* Shoes should be long enough and wide enough and fit the foot properly. They should be sufficiently flexible to allow movement of the foot but firm enough to serve as a support when walking on hard surfaces. The heels should be of a height that will not interfere with good body balance. Stockings should be one-half to three-quarters of an inch longer than the foot.²⁷⁵ Stockings frequently become too short for children because of shrinking and because of rapid growth of the foot at certain ages.

Sleeping and working conditions need to be evaluated in terms of their possible effect upon posture. Beds of ample length firm, flat springs and mattresses, light and nonrestricting bed-clothes contribute to good posture as well as good sleep. Desks and chairs should fit the child, so that his feet may rest firmly on the floor, his back touch the back of the chair, and the distance of the desk from the chair be such that he can lean forward from the

* In one study²⁷⁵ 72 per cent of foot defects in children were traced to outgrown shoes.

hips when working. The height of the desk should be slightly lower than his elbows when he sits erect. Comfortable chairs of the correct size and construction will encourage good sitting habits.

Adult's Role in Aiding Good Body Balance. Since good body balance is learned and some factors in life aid while others hinder a child's progress, adults have a real responsibility in setting the stage for the child. It is the parents who see that the environment in the home makes it possible for the child to practice good body balance. His bed, his chair at the table, the place where he reads and works are set for him. In the early years parents are responsible for his clothing. They are the ones who watch to see that he has not outgrown his clothes, that they fit properly and do not impede his activity. Later, as he becomes more independent, his own selection is influenced, in part at least, by the standards set up by his family. He learns his postural habits in his family. Here he unconsciously acquires his way of manipulating his body in all kinds of activities, from doing the daily chores to playing. He also imitates mannerisms of sitting, standing, walking, etc. from others in the family.

Parents can be aware of early tendencies by careful and regular inspection. He can be watched in action and in repose. By observing a child when undressed, parents can recognize the beginnings of some difficulties. For example, early recognition of inequality of leg length may prevent a permanent scoliosis. Cramped toes, or red spots on the feet may indicate improper fitting of shoes or stockings. Parents under the guidance of a physician also should see that early physical defects are prevented or corrected as far as possible.

Parents can create the right attitude toward posture. To do so parents need to have the right concept of posture. Good balance cannot be achieved by emphasizing one part of the body to the exclusion of others. Frequent reminders to "put your shoulders back" or "sit up straight" do infinitely more harm than good. Children either resent it or they become too self-conscious. For most young children good diet, sleep, a variety of activities and a happy atmosphere are all that is needed. Later on, children may need instruction in body mechanics to improve their posture. The point of attack will depend upon the interests of the particular child.

Parents may also cooperate with the school in its endeavor to protect their children's health and thus promote good posture. An appreciation of the school program and a willingness to reinforce the practices of the school at home make for success.

The school has a parallel role with that of the parents. The planning of the environment and the program in terms of the school's contribution to learning good postural habits is important. Lighting, seating, ventilation and work materials can be planned to eliminate unnecessary fatigue and permit the practice of good postural habits. The program can be planned to minimize fatigue by frequent changes in activities, frequent opportunities to move about and the elimination, as far as possible, of noise and confusion. The school can contribute further to the development of good postural habits by providing (1) a program of health protection and prevention of early defects and (2) a well balanced physical education program planned according to the child's stage of development and flexible enough to meet the differing needs of individual children.⁴⁹⁸ Time should be provided for helping individual children to learn to control their bodies and to use them in the easy rather than the hard way. Here, as at home, the attitude of the adults toward posture will do much toward creating a satisfactory attitude in children.

ORGANS AND FUNCTIONS

Some Pertinent Facts about Organs and Functions. The body performs its work more efficiently as development proceeds. As a child grows the heart beats stronger, more slowly and regularly; respiration becomes slower, deeper and more regular; food takes longer to pass through the digestive tract and digestion is not as easily disturbed; the bladder can retain urine longer; body temperature becomes more stable; the composition of the blood remains more nearly constant.* Because of this increase in efficiency older children and adults can adjust to changes in environment and in routines more easily than young children. In the early school years children acquire considerable physiological stability so that they can adjust to reasonable changes in temperature; their temperatures will not shoot up so easily in response to emotional and digestive disturbances. Periods of work and play gradually become longer without inducing fatigue. The foods which are given sparingly in the early years, because they may produce diarrhea, can be increased gradually during the school years. Throughout childhood, therefore, the demands which adults make of children must be compatible with the ability of their bodies to perform work.

The activity of the *digestive tract* has an intimate relationship

* For a discussion of changes in pulse rate, basal metabolism, blood pressure and the physiological adjustments after exercise during the adolescent period see Shock⁴⁹¹.

to growth since the fundamental process of growth, conversion of food into tissue, is primarily dependent upon adequate digestion. Foods which will interfere with digestion and absorption, or which crowd out essential foods, have no place in a child's diet, for the growing child cannot afford to lose the necessary growth promoting substances. Further need for a careful feeding program is indicated by the facts that the young child, in contrast to an adult, has a smaller stomach and intestines, that the digestive juices are less in amount and that the lining of the digestive tract tends to be more delicate. Even in the latter half of childhood, which falls in the school years, the child's stomach capacity is a little less than two-thirds that of his parent or his adolescent brother. His digestive tract does not become mature until puberty.

A difference in the rate of growth of the *heart* and the body as a whole during the school years has significance for adults working with children. Between four and ten years the heart has a period of slower growth. During these years the heart is smaller in proportion to body size than at any other time during the growing years. This lag of heart growth is greatest around seven years. Washburn¹⁰⁴⁰ states that heart lag in preadolescent and early adolescent years may account for the frequency of functional heart disturbances at these ages. Certainly at these ages children should be discouraged from participating in activities, either work or play, which place too heavy demands upon their hearts.

The *ears* and *eyes* are such valuable assets in an individual's life that protection of them at all ages is important. The ear is well developed at birth. The inner and middle ear have practically reached their adult size by the time the child is born. One difference between infants and adults which has particular significance is that of the difference in structure of the Eustachian tube which connects the ear with the throat. In the young child this tube is short, wide and straight, which affords a relatively easy passage for bacteria from the throat into the ear. This may account, in part, for the higher incidence of ear infections in young children than in later years. All necessary precautions should be taken in childhood to prevent ear infections which often lead to the impairment of hearing.

The *eye* continues to develop throughout the growing years.* The infant is usually farsighted. This farsightedness decreases during childhood. Binocular vision (single vision with depth per-

* For information regarding the development of the eyes, their care and factors influencing their health and development see publications of the National Society for the Prevention of Blindness, Inc. 50 W. 50th Street, New York.

ception) is slowly developed, often with temporary setbacks up to the age of six or eight. Many individuals never do achieve this high degree of vision.³⁶⁶ When binocular vision does not develop and the child has double vision the condition is called "crossed eye" or strabismus. It appears, ordinarily, at about two years of age, and at first is periodic, being most obvious when the child is excited or nervously exhausted. If strabismus persists and becomes constant, the child, in order to relieve himself of the double vision, will either cease using one eye or use the eyes alternately. In both cases, he is deprived of accurate depth perception, which interferes with his judgment of distances. If the use of one eye is suppressed, the sight in that eye will degenerate. Because such a child develops faulty visual habits, this condition should be recognized and treated early, if possible before it is time for the child to go to school. Correction at an early age protects vision and spares the child the humiliation of being different from other children. The health of the eyes is related to the general health of the child, to nutrition, to environment* and to the use of the eyes in health and in illness. Children need larger print than adults, and frequent relief from close work as we shall see later in Chapter 10.

The pattern of growth of the *nervous system*, in terms of weight, has been discussed in Chapter 1. We shall not attempt to discuss its anatomy and physiology here since we believe that it is more profitable for students in child development to approach the study of the nervous system through the observation and interpretation of children's behavior. The reader is, therefore, referred to the chapters dealing with motor and intellectual development.

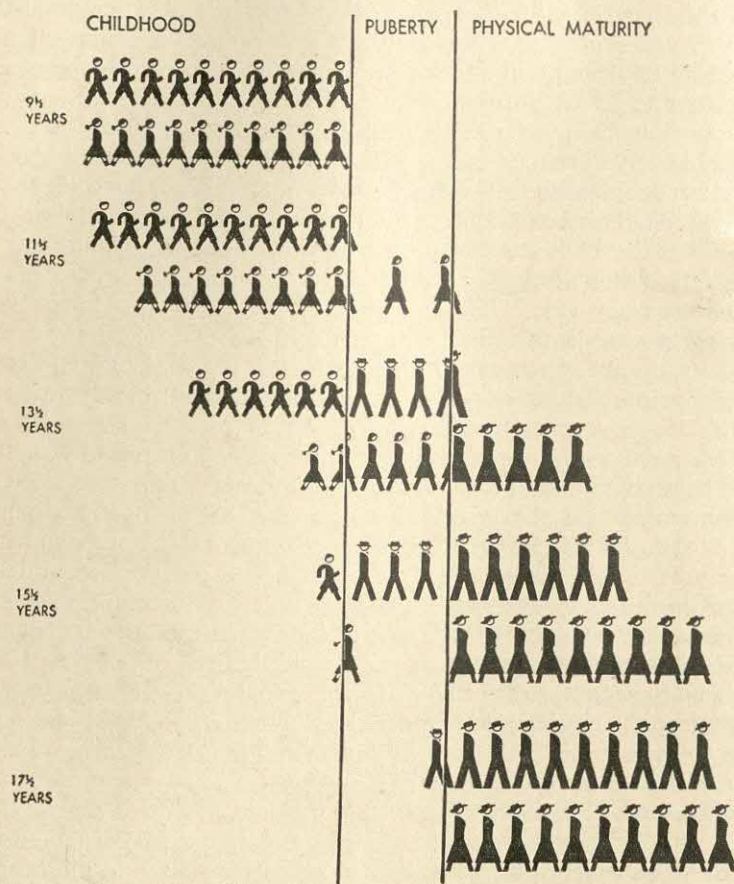
Reproductive System. The reproductive organs,^{235, 307, 575} which are immature at birth and remain so during the early years, have most of their growth during the school years† beginning somewhere around ten years of age and reach maturity when the girl begins to ovulate and the boy is capable of producing spermatozoa. There are no satisfactory data as yet on the actual age at which boys and girls reach sexual maturity as defined above. Sex differences are well established by birth and all during development these differences are noticed both in appearance and in developmental progress. The most important differences are the so-called sex characteristics: the primary sex characteristics which have to do with the reproductive organs themselves, and the secondary sex characteristics such as the distribution of hair, contour of hips, depth of voice and size of breasts which are

* For a discussion of environmental factors influencing the eyes see Chapter 5

† See Figure 2 in Chapter 1.

the results of the action of the internal secretions of the sex glands. The role played by the endocrine glands in influencing the development of the reproductive system has been discussed in Chapter 2.

WHEN BOYS AND GIRLS MATURE



Each boy represents 10 per cent of all boys of given age measured
Each girl represents 10 per cent of all girls of given age measured

PICTORIAL STATISTICS, INC.

Fig. 35. When boys and girls mature. (Keliher: *Life and Growth*, D. Appleton-Century Company.)

Boys and girls, as stated in Chapter 1, differ in the age at which the body changes characteristic of approaching maturity begin. These are largely changes in body contour and should not be confused with changes in height and weight discussed earlier.

These changes begin later for boys than for girls, as shown in Figure 35. Sometime between twelve and seventeen years the more obvious changes in the boy's body begin* while the girl's body changes may begin to appear anywhere from ten to seventeen years. Greulich et al.⁴¹¹ give the order of the appearance of body changes for boys during pubescence. One of the earliest indicators of approaching puberty is an increase in the size of the testes and penis. This often precedes the appearance of pubic hair by a year or more. Pubic hair generally appears between thirteen and fourteen years, but sometimes as early as ten or eleven years. The appearance of axillary hair and facial hair follow that of pubic hair after the latter is well developed. The change in voice, due to growth of the larynx, follows at about the fifteenth year. The voice of the sexually mature boy is generally about an octave lower than that of the mature girl.

In girls, according to Priesel and Wagner⁸¹⁵ and Pryor⁸¹⁹ the order of body change during pubescence is the rounding of the hips, development of the breasts, appearance of pubic hair and finally axillary hair. Occasionally, but rarely, the order varies. The broadening of the hips (an increase in the width of the pelvis and a rounding of the hips), due to growth of the pelvic bones and subcutaneous fat in that region, is more pronounced in some girls than in others. In some it is scarcely perceptible. In some, this change precedes the following step, the beginning of the growth of the breasts, by an unusually long interval. In the Pryor⁸¹⁹ study girls generally began to menstruate after the breasts had begun to develop and pubic hair had become pigmented and wavy. Prior to menarche changes in the vaginal secretion and in the type of bacteria in the vagina occur.^{792, 921}

The menarche† occurs for the average girl, as has been said before, some time in her thirteenth or fourteenth year, and at a skeletal age of thirteen years.⁸⁹⁷ There is, however, considerable individual variability. In the Engle and Shelesnyak³⁰¹ study some girls menstruated as early as eleven years, and some began as late as 16.3 years. Under ordinary conditions this can be considered the usual range. A few girls begin to menstruate earlier and an occasional girl does not menstruate until later. The indi-

* Schonfeld⁸⁶⁰ in a study of 1500 boys in New York City found that they entered the pubescent period anywhere from ten to sixteen years. With such a wide variation an average age has relatively little significance.

† Average age of menarche according to different studies: Brush Foundation¹⁶³ 12.6 ± 1.1 years. Harvard Growth Study⁹²⁷ 13.0 ± 1.1 years. California Adolescent Growth Study⁶⁷ 13.16 ± 1.33 years. Hebrew Orphanage Asylum³⁰¹ 13.5 ± 1.1 years. Horace Mann School¹⁰⁶ Hebrew 13.1 ± 1.2 years. Non-Hebrew 13.1 ± 1.2 years.

vidual differences in the time of first menstruation are due to differences in developmental status and this, in turn, is influenced by familial, nutritive, climatic, endocrine and other factors. Gould and Gould⁴⁰⁰ offer evidence of the familial influence upon the age of menarche. They found that daughters tended to menstruate early when their mothers had menstruated early, and later when their mothers had menstruated later. For example, daughters of mothers who menstruated between twelve and thirteen years of age had their first menstruation at 12.82 years, while daughters of mothers with their menarche occurring between fifteen and sixteen years had their first menstruation at 14.25 years.

Too little food, producing malnutrition, may interfere with sexual development. Steffko⁹⁴⁸ in studies on the effect of famine in Russia following the first World War found delayed sexual development in the boys and girls he studied. During the hunger months of World War II in Holland amenorrhea* was prevalent.† Overnutrition or obesity, also, has been thought to result in delayed sexual development. Bruch,¹⁵² however, offers evidence that obese girls, as a rule, have early puberal development and frequently obese boys do likewise. It has been her impression that puberal changes proceed more rapidly in obese children if they lose their excessive weight.

Further evidence of a possible relationship between nutrition and the age of menarche is found in several studies^{112, 400, 702, 705} which show that the onset of menstruation is earlier now than in former generations. This acceleration in sexual development of the youth of today fits into the picture of accelerated growth as shown in studies of height and weight.⁶⁹³ Since nutrition and improved hygienic conditions are believed to be contributing factors in the acceleration in growth, they may also contribute to this earlier maturity. These factors may also help to explain the earlier menarche in the United States with its higher standards of living than in Europe and Asia.⁷⁰⁵

Menarche is consistently early in central temperate areas and delayed in colder northern and in warmer southern areas. There has been a rather widespread belief in the past that the menarche occurs earlier in the tropics than in the more temperate climates.

* Amenorrhea is absence of or abnormal cessation of menstruation.

† In Rotterdam and The Hague during the hunger winter of 1944-45, 50 per cent of the women had amenorrhea and almost 60 per cent of the remainder had irregular menstruation. This condition cleared up when more food was available.⁹¹¹

Studies* have shown that this is not necessarily true. The role that climate plays is probably indirect rather than direct.⁷⁰²

It has frequently been stated that the age of menarche is influenced by race. The differences found among races† may not necessarily be due to race, *per se*. This has been demonstrated in a study of menarcheal age in Negro girls by Michelson⁷⁰² in which he found that Negro girls, on the whole, have a later menarcheal age than do White girls.‡ However, when comparisons are made between those of the same socio-economic status the difference does not exist.§ He further reports that in the North of the United States Negro girls have an earlier menarche than in the South and, in turn, those in the South have an earlier menarche than those in the West Indies. These differences can be explained on the basis of the constellation of factors associated with the socio-economic status of individuals. The differences attributed to race in other studies may likewise be associated with differences in environment and the pattern of living. Nutrition no doubt plays a role in these so-called racial differences.

Endocrine disturbances also affect the time of menarche. Endocrine disturbances, which interfere with the development of the reproductive organs, may delay menstruation.

That body build may be a contributing factor in individual differences in the age of menarche is suggested by Pryor⁸¹⁹ in that she found that the broad type (type being judged by width height index) tended to menstruate earlier than the slender type. The average age of menarche for the broad group was 12.4, for the slender group 13.2 years.

Menstruation|| is a part of a cycle of events which is under endocrine control (see Chapter 2). The length of this cycle varies between different individuals and from time to time within the same individual. Irregularity in the menstrual cycle is to be expected in the early years following menarche. Arey³³ summarized the data of twelve studies on pubertal girls and women.

* Mueller⁷¹⁷ found that the menarche of Javanese girls occurred on the average between the fourteenth and sixteenth years. He states that recent observers have been unable to find any evidence of precocity among natives of Japan, British India, or Egypt.

† Mills⁷⁰⁶ gives lists of the age of menarche for women of different races giving the author and date of the studies.

‡ When all Negro and White girls are compared, the menarcheal age of the Negroes occurs at 13.09 ± 1.2 years; that for Whites occurs at 12.86 ± 1.04 years.

§ Menarcheal age for "better-to-do" Negro girls was 12.85 ± 1.14 years and for White girls attending Abraham Lincoln High School in New York was 12.86 ± 1.04 years.

|| For a description of the menstrual cycle see Todd and Freeman.¹⁰⁰⁷

In these studies the most frequent length of a menstrual cycle was twenty-eight days. In terms of the average length of cycles, the pubertal girls' cycle averaged 33.9 days. Some girls varied no more than six days from their average; some girls varied as much as 211 days, thus at sometime skipping eight months between menstruations. The early years of menstrual function were most variable. For example, in the first 20 to 24 cycles, two-thirds of the cycles of the average girl varied as much as twenty days from the mean, while at eighteen and nineteen years this variability was reduced to four days. Knowledge of this expected irregularity in adolescence will allay fears and anxieties in girls who may consider themselves abnormal because their menstrual cycle does not follow closely the proverbial twenty-eight day period.

Adolescents also show great variability in the length of the menstrual flow. Bayer,⁶⁷ in her study of girls in the California Growth Study, reports that while the average duration of flow was 5.66 days for the group, the range was one to ten days. She compared these girls with a group of nurses between eighteen to twenty-seven years who had an average duration of 4.6 days.

Menarche, while it has been used as a criterion of sexual maturity, cannot be said to coincide with first ovulation. Animal studies^{443, 1084} have shown that the first menstruation and the attainment of the ability to reproduce do not coincide. Observations of girls in cultures in which promiscuous sexual relations are permitted among adolescents point to a period of sterility following menarche.^{36, 667} Mills and Ogle⁷⁰⁸ studied groups of unmarried Negroes in the United States and in Panama and unmarried Filipinos and found a lag between their age at menarche and first conception to be between 3.89 years (Negroes in Cincinnati) and 6.33 years (Filipinos in Manila). While such results are inconclusive in themselves because of uncontrolled factors, the authors believe they are significant since they are corroborated in experimental animals under controlled conditions. Menarche is not, therefore, a true criterion of sexual maturity but is rather one of the indicators of its approach.

Summary. Physical growth, as we have seen, is not only growth in height and weight but includes all those changes within the tissues and organs of the body which make it possible for the child to be healthy and to use his body with increasing effectiveness as his life unfolds. The degree of effectiveness achieved is dependent upon the processes of growth and maturation and the quality of body tissues. Good bones, firm muscles and sound organs are invaluable as a basis for a happy, satisfying life.

A knowledge of how children grow, namely, the sequential

changes, and the variability in the rate of growth from time to time and from child to child should give every adult who lives or works with children a basis for understanding the individual child. Thus, the adult can set the stage for the child, fit his activities to his maturity and rate of physical development, remove obstacles to development and provide him with the necessary prerequisites for growth.

QUESTIONS FOR CLASS STUDY

I. The following are the measurements of the height and weight of a boy. Evaluate his progress in terms of his gains and compare his height and weight with a norm. Write a letter to his parents interpreting his growth to them.

Age	Height	Weight	Age	Height	Weight
3	39.0	33.5	8	50.2	54.7
4	41.5	36.9	9	53.0	61.8
5	44.3	40.6	10	55.8	69.9
6	45.9	43.1	11	60.3	86.7
7	48.5	49.0	12	64.6	108.0

II. What would you say to a parent who was complaining that her fourteen year old boy has become lazy? What questions would you ask her? How would you help her to understand contributing factors?

III. Work out a home and school program for a seven-year-old child returning to school after having had scarlet fever.

IV. The school dentist has asked you to assist in presenting to a group of parents an educational program which will:

1. Make them aware of the need for better dental care for their children.
2. Point out factors contributing to poor dental conditions including dental caries and malocclusion.
3. Help them in gaining the cooperation of their children in correcting and preventing dental defects.

What information would you assemble and what methods of presentation would you employ?

V. Observe the posture of children in a high school. Have the students ample opportunity for learning good body balance? Discuss this from the point of view of school equipment, of schedule, of the programs for health protection and physical education.

VI. Considering the physical development of children of these ages plan a program of games involving physical activity for a group of (a) seven-year-old boys and girls, (b) thirteen-year-old boys, (c) fourteen-year-old girls.

VII. (a). Have someone in the class go through last year's file of the magazine *Hygeia*, looking for information on physical growth and development and report to the class.

(b). Have someone do the same with *Parent's Magazine*.

VIII. Plan a talk to pubescent girls interpreting to them the bodily changes occurring during pubescence and what these changes mean to them in terms of physical habits and social and emotional adjustments.

IX. A teacher of first grade said to you that she was not interested in the physical development of the children in her group because they presented no problems. What would you say to her to help her understand the importance of the development of children at this age and the need for her to be aware of the physical well-being of her children?

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8. GROWTH AND USE OF THE BODY:

Motor Control

Understanding of the Entire Growth Cycle Important to the Understanding of Any Part of It. In order to understand any stage of development one must understand the entire growth cycle. If, for example, one is interested chiefly in the school age period, one will find in the earlier grades children who are still in the preschool period of development either in body, or in mind, or in some aspect of personality development. A few children will be lagging behind their chronological age in all areas of growth. Unless one understands something of the nature of earlier growth one cannot best help these lagging children to catch up. Again, one must understand the aspects of growth which still lie ahead, or one cannot best prepare children to make the desirable smooth transition from present to future growth stages. We shall, therefore, attempt to trace some of the major areas of growth through the infant and preschool period, then through the prepubescent and pubescent, and finally through the adolescent and into the early maturity periods. Our immediate concern will be with growth in control and use of the body

Equipment for Learning Possessed at Birth. Perhaps the most conspicuous thing about a newborn baby is the fact that he has, in nine months of intrauterine life, grown from the two cells which met at conception into a complex human body able to maintain the major life functions of breathing, moving, eating, digesting, and eliminating apart from the mother's body. He has the impulse to grow and to learn and the mechanism with which to do both. He has inherited certain bodily and mental qualities; he has already been influenced by the environment of his mother's body for nine months of important development. He is not the "tabula rasa" which Locke claimed children to be and upon which, he claimed, could be written anything we wish. He is, however, an extremely impressionable being, subject to the physical, intellectual and emotional forces around him, largely

made or broken in physical and mental health within the first few years of his life.

MOTOR GROWTH: GENERAL BODILY CONTROL

Learning to Use the Body. Early Beginnings. One of the most interesting of the learning patterns to follow is the achievement of general bodily control which leads to upright walking and the later skills which use the entire body. From the beginning of random, jerking, uncoordinated movements the infant gradually picks out those which prove satisfying and useful.*

Control proceeds in general from control of the whole body to control of the various parts; from the less well differentiated to the finer movements. It also proceeds from head and neck through the torso and into control of arms and legs.† Newborn babies have little general muscular control. Even a three-month-old baby needs his back and head supported while being carried or handled. However, within the first few weeks most babies learn to pick up their heads if placed on a flat surface face downward. The lift will be wobbly and temporary, control of the neck muscles being so undeveloped that the head may fall forward with a thump.

Muscular strength and coordination proceed so rapidly, however, that by four to six months of age most babies, placed face downward on a table, can lift head and chest and, by wriggling the elbows under them, can hold this upward lift for some seconds at a time. The head and neck muscles coordinate well enough by three or four months that babies, held up so that they can see over one's shoulder, will survey the scene for several minutes on end, only dropping the head occasionally for rest. This head and torso control are good enough by four or five months to permit most babies to sit upright with comfort if they are supported by pillows, and the length of the sitting up periods are gradually increased as muscular strength improves. Babies become fretful or cry when fatigued, and will thus give the sign for change of position and muscular rest.

Sitting for short periods without support is usual among babies of seven or eight months.^{274, 280} By nine or ten months babies can sit upright for indefinite periods. Some babies can stand

* See Bibliography²⁸ for a review of current research in motor development.

† The assumption that all behavioral development occurs from a generalized total pattern to specific responses must, according to Carmichael,²⁸⁰ be taken with great caution. In a careful and complete analysis of studies of fetal behavior he states (p. 120): "Certainly the late fetus has an elaborately organized and in some respects quite specific response mechanism. To some stimuli the relatively early fetus makes quite definite responses."

with help at nine months, and nearly all babies can do so by twelve months. Linfert and Hierholzer,⁴⁰⁸ in studies of groups of infants found that 10 per cent of their babies could stand with support at six months, that 100 per cent could do so at twelve months.

Locomotion, or getting from place to place, really begins with the muscular strengthening and controls learned during the first weeks of life. Stretching and pushing of arms and legs are essential exercises for the young infant. Babies can turn from side to back or side to front by three or four months, can flip completely from back to front or vice versa by six or seven months if free of clothing. Crawling, or hitching himself along on stomach or back, has usually been discovered as a means of locomotion by six to eight months. Creeping, or moving on all fours (hands and knees, or, occasionally, hands and feet) follows crawling, although some children creep without crawling. Many children of eight or nine months cover ground rapidly with a sideways hitch-creep-sit technic, scooting along on one hip with the two hands and opposite foot as propellers.

Pulling up onto the feet by means of a chair or table leg often accompanies this period of creeping, and many children learn to pull up some days before they learn how to let themselves down to a sitting posture again. From this standing up with the help of support, the baby begins gingerly side-stepping back and forth around chair or crib, or whatever object is providing the support. At this stage of learning peoples of many cultural traditions offer babies special aids in the form of walkers of one kind or another. Present understanding of the psychology of learning, however, strongly recommends that the baby be left to his natural development without dependence upon artificial aids. Mastery of the art of standing, balancing, and hence walking taxes muscular strength, produces a good many falls, is slow, and therefore requires a good deal of courage and patience. If the satisfaction of getting around from one place to another is made too easy by mechanical aids the child's progress on his own may be retarded.

After walking has been fairly well mastered and has produced the genuine satisfaction which will fix it in behavior, however, presentation of kiddie car or tricycle will offer a fascinating new means of getting around and extend, rather than limit, the child's range of body skills. Especially helpful to the thrill of adventure and self-confident control of the body are two-wheel scooters given to the child as body balance and running skills develop. Fortunately for the development of both physical skill and psychological adequacy, bicycles are demanded by most children of

six or seven to eight or nine years of age. Traffic hazards in some communities are great; the parent must, therefore, see that lessons of self-care in traffic have been well learned before bicycle freedom is given. With the help of most public schools, this is learned, as a rule, by seven. However, the riding should be limited to uncrowded areas until the child has complete mastery of his vehicle.

Independent walking appears at a comparatively wide range of ages, and illustrates nicely the arguments against a too rigid adherence to standards of measurement. The average age of independent walking, determined by wide studies of many children, seems to be somewhere between thirteen and fourteen months. Some children walk as early as nine or as late as eighteen months; an occasional child walks at seven or eight months.^{68, 374, 821, 1027} Fast growers on the one hand walk early; slower growers later. Yet both are probably developing at a "normal" rate, that is, a rate desirable for that individual child because it is a rate compatible with his total development.

Factors Influencing Age of Walking and Later Motor Skills. Acquisition of walking skill, like the achievement of most motor skills, depends upon a number of factors. Probably first is good physical health and adequate bone and muscle development. Plenty of space for general locomotion activities is important along with the opportunity to use the space freely without too much interference from adults. Also conducive to rapid learning are clothing which permits freedom of action, and shoes which are well-fitting and have firm but flexible soles. General intellectual development used to be considered one of the factors most closely associated with age of walking. Normal development of the nervous system and normal intellectual alertness are indeed closely correlated with normal age of walking, yet delayed walking or other delayed motor development does not necessarily indicate retarded mentality since there are, as we have seen above, many other reasons why children may prove slow in these developments.

Emotional factors are important. Severe accidents may produce timidity; illness may rob the child not only of physical strength but also of normally active aggressiveness; too great anxiety on the part of adults that the child may hurt himself may make him overanxious about the dangers of the bumps without which bodily skill can scarcely be achieved. Too great concern lest he prove late in walking, or too great enthusiasm about first successes will frighten timid or self-conscious children away from further effort. Children, however, need the enthusiasm and encouragement of adults in all their learnings, the warning here

simply meaning that overenthusiasm may place too great emphasis upon the necessity to succeed and may frighten some children. A few children, lacking a vigorous interest in learning new things, may prove slow in acquiring motor skills because they have no need to get about, since everything is brought within their reach and they like the coddling better than the adventure involved in finding things for themselves. In learning all motor skills, children need health, vigor, opportunity to experiment, freedom to adventure, and the satisfactions of adult encouragement. The accomplishment of the first independent walking is rightly celebrated in the lives of most babies. It represents, whether the parents are consciously aware of the fact or not, a sort of "commencement" or "graduation," and it is a "certificate" of good physical and psychological development if it occurs near the normal age.

General Bodily Control Proceeds Rapidly. From the wide-spread legs and the wobbly struggle for balance which characterize the first walking of most babies, there gradually develops a smoother gait, followed by ability to run or trot about. *Climbing* up and down stairs depends upon opportunity to practice and, of course, the steepness of the stairs, but most babies can negotiate passage upstairs by a creeping-hitching method at about the time they walk easily. Coming down by a sitting-sliding method follows soon after. For peace of mind, most parents find it wise to place gates at the head of long flights of stairs until the child can manage stairs in an upright position and is, therefore, less likely to fall. Proper assistance from banisters low enough to reach, or posts small enough to hold on to make this possible for most children before three years of age. Children are usually at this time still using the one-foot-at-a-time technic but are secure enough that stairs are no longer a hazard. Depending upon the steepness of the stairs and the banister aids, most children acquire the adult method of ascending and descending by alternate feet on successive steps by three-and-one-half or four years of age.

Gutteridge,⁴¹⁷ in a study of the motor development of nearly 2000 children from two to seven years of age, found climbing on stairs, low inclined planks, packing boxes, jungle gyms and the like was well established as a skill at three years of age in half of the children studied. After this there was a steady increase in climbing ability until, at six years, 92 per cent of the children were proficient. Climbing up, she found, was somewhat easier than climbing down, at least during the early stages of learning. Later, however, when both ascending and descending have been

mastered, the speed and ease of the two accomplishments do not differ.

The higher the altitude from the ground the more difficult the task of climbing. At least, children who have achieved advanced skills of speed and confidence at lower altitudes Gutteridge found at higher levels reverting to the earlier stages of crawling on all fours, holding on, moving cautiously. Once, however, the child has reached a certain level of proficiency, height seems to have little effect upon him.

Hopping on one foot, skipping, jumping, standing on one leg all come before school age if normal opportunity and freedom are allowed. Most books on kindergarten and primary practice suggest hopping, skipping, jumping, and galloping as appropriate group activities for five- and six-year-old children, saying that younger children cannot master these accomplishments. This is good theory, since many children do not prove able to do these things earlier. However, Gutteridge gives us some interesting figures in this connection. She reports that jumping is a skill in which 42 per cent of her group rated well at three years. At four and one-half years 72 per cent were skillful, and at five years 81 per cent were proficient. Jumping from a higher level to a lower is in evidence in individual cases from two years on. Jumping over an obstacle presents a different hazard and appears to call for a different stage of ability and practice. Individual children of four years find this difficult, and use less mature methods of attack. A long jump is attempted by some individual children from five years on. From six years ability in such stunts as high jump and broad jump improves rapidly.

Children are six years old before the majority of them can hop skillfully. The range of ability is wide, since among six year olds one may find every level of hopping skill from refusal and inability to excellence.

Galloping is a skill not seen in three year olds; but many four year olds practice it and many five year olds are able to do it fairly well, although not until six and a half years are most children really skillful. Children appear to have different ways of learning to gallop. Most seem to introduce a galloping step into their running or to pound on the strong beat of the music. Only later do they learn the basic movement of throwing the weight on to the forward foot when galloping. When children become skillful in galloping they introduce many variations and are found to be galloping sideways and backwards and to add gestures or vocalizations while in motion.

Skipping enters later than galloping into a child's motor reper-

tory. At four years of age only a few children are able to skip; by five years many children are able to do so, while at six years nearly all children have learned this basic step.

Children of two become very skillful in the management of kiddie cars or tricycles, steering, backing, turning with speed and accuracy. Three year olds are facile on tricycles and often on two-wheeled scooters. Four year olds push and turn wagons, complicated foot-operated automobiles and airplanes with great skill. Five year olds sometimes roller skate fairly well, and, with practice, can perform the complicated footwork involved in galloping and in some dance steps. Seven and eight year olds are often graceful, speedy and agile, being able to master quite complicated dance steps.

In the use of the nursery school and kindergarten slides Gutteridge found that 54 per cent of her three-year-old children could slide well, the percentage rising to 71 for four year olds, and to 96 for five year olds. The difference in the height of the slide did not appear to make a marked difference in proficiency except in the early years. From four years of age the majority of the children were successful at any usual height of slide. Interest in stunts on apparatus in gymnasium or on the playground increases rapidly from five years throughout the elementary school years.

Skills Characteristic of Early Primary School Years. *In learning to throw and catch a ball* we can see a steady pattern of development. Gesell introduces his discussion of throwing skill by saying:

Throwing involves visual localization, stance, displacement of bodily mass, reaching, release, and restoration of static equilibrium. Skill in throwing a ball requires a fine sense of static and dynamic balance, accurate timing of delivery and release, good eye-hand coordination, and appropriate functioning of the fingers, as well as the arm, trunk, head, and legs, in controlling the trajectory of the ball.³⁷⁴

Gutteridge offers interesting evidence of the extent of ball-playing skills which younger children have mastered. She reports that, although children of two and three years were often found practicing the throwing of a ball, no two or three year olds were rated as throwing a ball well, and only 20 per cent of the four year olds were so rated. From five years to five years six months, however, 74 per cent could throw well and at the latter part of the same year 85 per cent are proficient. The range of ratings in throwing is wide at all ages, for even at six years of age it covered the scale from awkwardness to excellence in ball throwing.

She reports that children of four years were rated as awkward in attempting to bounce a ball. It was only at five years that 45 per cent were proficient while at six years six months 61 per cent were able to bounce a ball well. The range of achievement in bouncing was also wide. It virtually covered the whole scale of achievement at every age level. In ball catching only 29 per cent were proficient at four years, while at five years 56 per cent were able to catch a ball and at six years the percentage was 63.

Ball playing is so universal a game in the United States that skill in handling balls of all kinds is almost a *sine qua non* for good gang contacts in the elementary school years. Simple ball playing which requires little in the way of complex team work is somewhat popular even in the primary school years, although chase and run games occupy more of the time of children of this age because they are more skillful in running than in throwing and catching. Team ball games are extremely popular with upper elementary school boys who, at that age, not only possess good throwing and catching skills, but are also attracted to complex team play.* Touch football is popular even with girls in the upper elementary and secondary school years. Soccer is especially popular with high school and college girls. Basketball, volley ball, tennis, pingpong, and other ball games which require accuracy of timing hold the interest and develop the skills of children throughout preadolescence and adolescence.

Strang⁹⁶⁰ gives an excellent summary of general bodily skills characteristic of children at entrance to school (five and six years of age). Running, dancing, and climbing are given as activities which afford much pleasure and profit to primary children. Children begin jumping rope between five and six years; can walk a chalk line or the top of a fence and can balance on roller skates, but have trouble with single blade ice skates. Most six and seven year olds, however, can manage ice skates. If previous lessons of balance have been learned on two-wheeled scooters, some children can ride small bicycles at six or seven.

Most children of seven or eight can roller skate gracefully and ride bicycles skillfully, the grace and skill or ease being a stage of learning which has passed the first stages of mastery. In roller skating and bicycle riding, as in climbing, we see evidence of an early stage of learning in which the motor habits have not quite smoothed out, viz., the stage of tumbles, tight muscles, and awkwardness. Later, with practice, comes a stage of rhythm in all motor learnings. The clumsiness of the eighteen-months-old child in walking, passes into the awkward, flat-footed run of the

* See Social Development later.

two year old; and this passes into the increasing skill and balance of the three and four year old; but one seldom sees the flow and ease of movement which are referred to as grace in walking or running until the child is five. So it is in roller skating or bicycle riding. Piecemeal, step-by-step movements which are characteristic of the first stages of learning with time flow into the self-assured, relaxed rhythm of movement which we call grace. Kingsley⁶⁸⁸ points out that once a skill is acquired up to the level needed for proficient performance, continued practice will make it operate more smoothly as an integrated whole. Accessory or waste movements will be eliminated, fatigue will be reduced, speed and accuracy will be increased, and increased emotional satisfaction in the use of the skill will result.

Many children never go on past the stage of awkwardness in their motor learnings, partly because they do not practice enough, but partly, too, because self-consciousness and negative attitudes grow up which keep the child from freeing himself as he moves. It is important in all dealings with children to see that no adult approach is allowed which would cause feelings of inferiority or self-consciousness to "tie up" motor skills. Ridicule, sarcasm, scolding, or laughing at children's clumsiness in the early learning stages, or at the inevitable slips which cause dropping of objects, stumbling, or falling, may cause an emotional blocking which can result in tense movement and awkwardness throughout the child's life. Instruction in motor skills can, through pointing out more efficient procedures, cut down waste movements and keep poor habits and false accessory movements at a minimum. Children must practice any new skill with satisfaction if learning is to proceed rapidly. The teacher can do much to keep motivation at a high level, and to help the child to retain self-confidence in his ability. Unless there is a defect of muscles or nerves or bone structure, grace and free-flowing, rhythmic bodily movement should become the possession of every child. No child should be robbed of the joy which can be found in skillful bodily movement, of the social contacts it can provide during the preadolescent and adolescent periods, or of the contribution which adequate exercise and bodily expression can make to general mental as well as physical health and vigor throughout life.*

The Elementary School Years. Joy in the use of the body is normal for children throughout the elementary school period. Extremely popular are running, chasing, jumping rope, hop-

* Mahler,⁶⁸⁶ p. 50 says: "Motor release is the most important and soundest device of the growing child to serve ego growth, obtain balance, and form an always available safety valve against anxiety."

scotch, hikes in the woods, roller-skating, bicycle riding, swimming, and all other forms of physical activity which are outlets for energy. Most children from six to twelve are problems to the adults who are responsible for them because of the insistent vigor of their movements, their inability to remain quiet in body or voice, their concentration on physical play and rough-housing. In motor skills, as in intellectual skills (see Chapter 11), the elementary school years prove to be a period of practice in the perfection of lessons already learned, and in the extension of new skills. Interest in the use of their own bodies is so dominant in this period that children as a rule devote much more time to this than to the use and manipulation of tools or toys like blocks or dolls, popular as these toys are. Strang aptly summarizes the situation by saying: "An eight-year-old will probably prefer tag to toys."⁹⁰

Children of this age have the need to push themselves into the type of new learnings which require courage. We find that they are constantly "daring" each other and taking "dares." Stunts, like walking high and narrow fences, performing on a high bar or trapeze, games like "follow the leader" are so characteristic that most writers fail to attribute such behavior to any other age. At very early levels, however, children tend to "stunt" in any field of motor activity as soon as they master a skill. Two and three year olds use slides "belly-buster" or backwards, as soon as they have conquered the usual "slide-on-the-seat" method. Common observation of any group of preschool children or even of one-year-old children will corroborate such findings as Gutteridge's or Gesell's that children scarcely learn to walk with reasonable balance before they begin such "stunts" as running on tip-toe, running with arms held high above the head, and later, whirling to make themselves dizzy. In all types of motor skills we can expect from an early age variations in such directions as speeding and the addition of difficulties of balance or coordination not inherent in the original nature of the skill itself.

This seems a general principle in motor learning. Jersild⁵¹⁷ reports that as children grow past the preschool years into the elementary school age, they develop not only more expertness and versatility, but also more speed of movement and greater strength. Goodenough³⁹⁴ found a steady increase in motor reaction time from $3\frac{1}{2}$ to $11\frac{1}{2}$ years of age. Jenkins⁵¹³ found a steady improvement in several athletic stunts like short dashes, ball throwing, broad jumping between ages five and seven.

Jones⁵⁶² found what we all observe in children, that once the basic mastery of any skill has been achieved, concentration upon

the mastering of the skill lessens and the skill tends to be used in more imaginative play or for work or other use. One can see a six- to eight-year child concentrating on riding a bicycle, learning to get on, start, stop, balance. Once learned, however, the skill is utilized to run races, to speed up the journey to school, or for some other purpose. At first the joy lies in mastering the learning, then in using the skill to some end. Only occasionally will renewed concentration on learning itself occur, and this will be when some new stunt is being learned: backing the tricycle, turning sharp corners with the bicycle, throwing a new curve on the ball, making one-handed catches or scooping up grounders. If we are to make physical education programs useful as well as interesting to children, we must help them to enlarge the variety of skills as well as to amuse themselves by using skills already mastered.

Adolescence. In the adolescent period, as in the preadolescent, there is at present a great paucity of material on the development of motor performance.* There are a number of observations of the width of broad jump, or the height of a high jump, or the speed of a hundred-yard dash for children at various ages. Little has been done in the observation of patterns of acquisition of motor skills at the elementary and secondary school ages. One of the best of the observations of motor performance characteristic of adolescent young people and of the relation of these performances to body type or stage of growth, is that of Espenschade, whose work was part of the extensive, longtime study of adolescent children at the University of California under the direction of Harold E. Jones. In a survey of current literature in relation to the motor performance of older children, Espenschade notes that, "It has long been recognized that older, taller and heavier children are stronger and in general more proficient in activities than are younger, shorter and lighter children."⁹¹⁹ Several studies by MacCurdy and others^{186, 233, 273, 645, 656, 743} corroborate this viewpoint,

Most of these studies indicate that the relationship between strength and skill is less marked in girls than in boys, although Carpenter¹⁸⁹ found that strength and power were important to athletic accomplishment in the girls she studied. She also found that a masculine type of build in girls tended to be associated with good athletic performance.

Although Espenschade⁹¹⁹ found that there were sex differences in motor performance in favor of boys at all ages, the differences between boys and girls were greater for the older than for the younger children. Munn,⁷¹⁹ in a careful survey of the literature,

* The fragmentary nature of experimental evidence on motor development in childhood and in adolescence is pointed out in Jerseld.⁶²¹

explains the fact that boys in our culture are somewhat superior to girls in many types of motor performance at all ages. He says that there is evidence that girls, given the same training and practice in motor performance, learn as rapidly as boys do. Although there are differences in skills at all levels, there is little or no difference in basic motor learning ability, especially in such fine motor skills as typing, match making, surgery, and piano playing. The skills in which there is probably basic difference in ability are those which require great muscular strength, like the shotput, football, and the broad and high jumps.

Evidence seems to indicate that with intense practice and interest men and women can do motor performances on the whole about equally well, the difference in the skills achieved being in large part due to the practice and interest involved.⁴⁹⁴ These, in turn, are largely the by-product of cultural expectation, the girls in our culture being encouraged to do "girls' games" and "girls' jobs," the boys being encouraged to do those things expected of men.

For both the sexes there is a high degree of correlation between intelligence and the complexity of motor skills the individual can achieve, surgery and violin playing requiring a higher degree of intelligence than floor scrubbing or ditch digging.

Espenschade found that, probably because of both maturity and cultural factors, girls taper off in motor performance at around fifteen years of age, whereas boys do not taper off until seventeen or eighteen years. The maturity factor is related to the fact that biological maturity is a stage at which motor strength reaches its maximum potentiality.* The factor of cultural impact is explained by Espenschade as follows:

In contemporary society the general approbation accorded physical skill in girls ceases with early adolescence. At this time for boys the role of sports and the prestige surrounding the outstanding athlete assume exaggerated importance. This social attitude cannot but influence the child's interpretation of his personal needs.⁹¹⁹

Children who belong to a good or a poor group in motor performance at one age tend to remain in that group at later ages. A few children change position because of changes in motivation. Especially rapid or somewhat retarded growth may, however, cause some change in the child's position in the group, making him move up or down in relation to the skills of other children.

* Dimock²⁷² found that boys of thirteen who were biologically mature were stronger than boys of fifteen who had not matured.

MOTOR GROWTH: DEVELOPMENT OF FINER MOTOR SKILLS

Like the development of larger muscles and of gross bodily control, the development of the smaller muscles and of fine motor skills proceeds by an orderly pattern. Controls of eye muscles, and of hands and fingers progress from the random uncontrolled movements of the tiny infant to the finely controlled skills which make reading, writing, drawing and fine mechanical work possible.

Control of Eyes. Few people realize that children are not born seeing, but that they must master two very fine muscular processes before light can be focused on the proper spot of the retina for keen vision, or before the two eyeballs can be turned into position to gain a true picture for each eye. The detailed steps by which these two muscular skills are mastered can be found elsewhere.⁸²¹ The fact important for a teacher or parent to know in this connection is that most children do not perfect the art of turning both eyes together upon an object until several months of age, and some children still have difficulty as late as three or four years, looking straight-eyed one moment, and cross-eyed or wall-eyed the next. Some children suffer from strabismus as late as six or eight years, as we saw in Chapter 7. Defects of eye control which occur as late as this, however, should have the attention of a good oculist, as should even eighteen-months-old children whose eyes have become fixed at the wrong angle.

The finer control of tiny muscles which govern the lens in the focusing of light is pretty well mastered by five or six months of age. At least, the normal baby gives evidence of being able to see an inch cube at four months, and specks of dust or hairs on a rug at six months. One-year-old children delight in picture books which have one or two simple animals or figures on a page. By two and one-half years children spend ten to fifteen minutes or longer looking at picture books and listening to simple nursery rhymes. They cannot concentrate on one page more than a brief moment, however, but will want to move from page to page rapidly. The art of focusing the light on the retina and at the same time carrying the eyeballs horizontally across the page is still so difficult for many six-year-old children that they can read simple primers only by tracing the lines of the text with their fingers as an aid to the eye on keeping the place. Eye control proceeds rapidly from six years on, however, and increase in the eye controls as well as in span of perception which permit increase in speed of reading are possible well into adulthood for people of normal vision or who are properly fitted with glasses.

Control of Hands and Fingers. At birth one of the most characteristic of the random movements is a constant fanning of the hands, the fingers and thumb spreading and closing alternately. From this, apparently, develops not only strength of the individual muscles but also a gradually increasing voluntary control over them.

Even at three or four months most infants have not yet learned that what they do with their fingers has anything to do with the retention of a rattle. They grasp by chance, and let go by chance. However, they are beginning to make some important connections between what they see within reach and the fact that contraction and extension of certain arm and finger muscles brings the seen object into possession. At three months a proffered toy will usually throw the baby into excited movement of arms, legs, and head, but there is as yet no selection from these random movements. Close observation, however, will reveal that once this learning is initiated, even a few trials lead to a start at selecting right from wrong movements, and in a few days arms begin to do more of the reaching while head and legs do less. Gradually eye-hand coordination becomes more effective and by four to five months most babies will reach directly with hands, closing in upon the coveted objects with a fair degree of accuracy. At six months to seven months many babies reach and grasp effectively with one hand in the lead. Nearly all babies have achieved this by nine months of age. Shirley⁸⁹⁰ describes this learning as follows: reaching and missing, reaching and touching, grasping and not holding, grasping and retaining, holding and manipulating, and holding and manipulating with one hand.

Gesell³⁸⁰ corroborates the pattern of learning in the reaching, grasping field, and emphasizes the role which the thumb plays in the development of efficiency in the use of the hand. He calls this use of hands for grasping *prehension*, a term which should become familiar to students of child development.

One of the most interesting things to note about the hand of the newborn baby is the complete uselessness of the thumb in hand action. Characteristically the thumb lies flaccid in the palm of the hand, being fanned out as the fingers spread, but seeming to have no "character" of its own. The Darwinian grasp, characteristic of the hand action of newborn babies, is a "monkey" grasp, using the four fingers, but not opposing the thumb unless by chance the testing rod is inserted between thumb and fingers. Effective use of the hand depends not only upon eye-hand coordination and proper extension and flexion of arm and finger muscles, but also upon the development of the "pincer" technic

which uses the thumb in opposition to the fingers in grasping. Early reaching and grasping under voluntary control at three to four months takes place by the "palmar scoop" (Gesell's term) method in which the thumb is still ineffective and objects are scooped up by the four fingers and side of the palm. The thumb "takes on character" and becomes effective in the "pincer" technic at about six to eight months, at which time babies can pick up objects with a dainty finger and thumb grasp.

By eighteen months accurate reaching for near objects has become automatic. In reaching for objects beyond arm's length, however, much body balance is required. Even four-year-old children tend to push one set of muscles in improper balance to others, hence are awkward and immature in reaching. Not until six years is the art of body balance so well in hand that the child can reach for objects beyond arm's length with ease and assurance.

Certain Behavior Problems Belong to the Age of Learning to Use Hands. At around six months of age, when the "pincer" technic of prehension has become effective for picking up tiny objects, and when the eyes have mastered focus upon tiny near objects, the eyes and hands have learned to work together.* The happening together of these growth accomplishments produces a characteristic behavior problem. Parents of babies of this age are often troubled by the "baby's dirty and dangerous habit of putting pins, specks of dust, hairs into his mouth." Occasional psychologists explain this "behavior problem" as an evidence of the baby's natural inclination to eat dirt. Understanding of growth patterns, however, makes it quite easy to explain as the by-product of a focusing of several patterns of learning and a natural practicing of new learnings which in themselves are thoroughly desirable. If one looks upon such behavior as a troublesome problem which indicates perverse instincts, "treatment" is likely to be instituted, and tension on the part of the parent is almost inevitable. Looked at as the exercise of naturally desirable learnings, the answer is simply to see that the baby has a clean place to play and plenty of desirable and safe objects to manipulate and to put into his mouth.

A second "problem" is characteristic of the period when skill in use of the hand is proceeding at a rapid rate. Restless hands, needing to learn, if deprived of objects to manipulate almost inevitably concentrate upon exploring the body to which they belong. All babies explore their own bodies, tugging hair and

* Eye-hand coordination, the use of eyes and hands in coordinated movement, has a growth history of its own which we shall not elaborate here. So, also, has hand-mouth coordination. This material can be found in Rand.⁸²¹

ears, grabbing toes, rubbing stomachs, exploring genital organs. As the most everpresent environment, the body offers the most convenient object for exploration and manipulation. Babies should be permitted to discover the confines of their own bodies, part of which inevitably includes occasional touching (for girls) or touching and tugging (for boys) of the genital organs. If this behavior is not singled out for emotional excitement or made the focus of a disciplinary battle, and if normally desirable manipulation toys are provided, no "sex" problem will arise. Exploration of the genitals is a very usual type of behavior in infants and young children^{374, 595, 623} and should assume little if any greater significance in the development of the infant than manipulation of ears, hair, or toes.*

Children who masturbate (or handle genitals) in school should be called to the attention of the school doctor for an examination to reveal any possible adhesions or other irritating physical cause of the behavior. If no doctor is available, the teacher should suggest to the child's parent that a physical examination and care might relieve the trouble. Care should be taken in approaching parents on this subject, however, since many parents still belong to the generation which cannot face any conversation in the area of sex, and are so emotionally disturbed by it that they are unable to take necessary steps toward the correction of unfortunate sex habits or attitudes.

Many children masturbate because they have stumbled upon the possibility in the early babyhood explorations of the body and have been dealt with unwisely, thus making the habit assume an undue significance. As in thumbsucking among school-age children, it often indicates too little interest in a more constructive use of the hands, or such unfortunate treatment of the habit in babyhood that it has persisted. In this case there would be implied the need to wean the child away from such concentration on himself and his own body and into an increasing satisfaction and pride in using his hands and his mind for other things. Occasionally the habit results from a deep need for affection or for

* Some schools of psychology will dispute this. Freudians teach that manipulation of the genitals, along with sucking at the mother's breast, and other infantile behavior is highly significant in the development of the sexual life of the individual. That it is normal behavior and occurs in the development of all children, we agree. That the steps of development in this area are of great significance to adult sexual functioning, being of definite positive value if "grown through normally" and of serious negative value if handled unwisely in the infancy period, we also agree. Our object here is to minimize emotional tension on the part of the parent, and to "normalize" in the mind of the parent what the Freudians call "infant sexuality." For further discussion of this see Chapter XIV.

status with one's family. This latter is a rather delicate area for a parent conference, but one can at least suggest a greater demonstration of affection and somewhat more frequent praise of the child's efforts; perhaps less punishment. In any case a teacher can provide some of the love such a child needs. Occasionally the habit occurs in an overindulged child who refuses to curb any desire. In this case a more consistent and firm discipline may help. It is clear that a teacher must know which is required—more discipline or more praise, before she recommends either.

A third problem, again associated with this six-months to one-year-old period of rapid increase in use of hands, is that of thumb-sucking, a habit which is found very frequently among American children and children of Northern Europe.* If a child is still sucking his thumb when he enters school the teacher should make every effort to interest him in the use of his hands for more constructive purposes. She should also do everything possible to make the child feel emotionally secure in his new environment, and should quietly expect that the habit will stop as time goes on, namely, as the child learns more satisfactory "grown up" ways to find his security and his place in the world. In this, as in any case which requires special understanding of the child, contact with his parents is essential. The teacher needs to know, if possible, what gave rise to the habit (although most parents do not know), what the relationship of affection and discipline is between the child and his parents, what opportunity he has had to learn a more satisfactory use of his hands, and the other facts without which she cannot possibly deal intelligently with the child. Children who are finding reasonable satisfaction in the use of their hands, whose affectional security is sufficient, and who are not clinging to babyhood for some reason or other do not suck their thumbs past four years of age. (See effect of thumb-sucking on teeth in Chapter 7.)

Preference in Use of Hands. A question which arises frequently in education is whether or not to compel the use of the right hand. Some educators feel that this is a right-handed world; therefore, all children should be trained to use the right hand. The evidence, however, would seem to make this position untenable from the point of view of child growth.

Although hand preference is not as a rule evident in the first year of life,⁴²⁸ it becomes clearly noticeable between one and one-half and five years of age.^{549, 1019} For a time, when infants are beginning to develop skill in the use of their hands, they appear to be ambidextrous (to use either hand as well as the other).⁸⁹⁰

* Discussion of causes for thumbsucking can be found in Rand *et al.* ⁸²¹

Specialization in the use of one hand as preferred over the other begins only when the infant has developed some skill in the use of both hands. Gesell studied handedness in young children as measured by hand preference in scribbling or writing and other forms of manual activity. He concludes that "whereas hand preference in some instances may be determined as early as eighteen months or two years, predictions of handedness cannot in the present state of our knowledge be made with assurance until a later age."³⁷⁴ It can, however, be clearly observed before the child enters school.

Although earlier behavioristic psychologists¹⁰⁴⁴ claimed that handedness was a matter of training, current evidence, particularly from the field of neurology¹⁷⁴ reveals that left-handedness has a structural basis and is not an acquired faulty habit. Mild types, in which the preference for use of the left hand is weak, can be overcome by educational training. However, if the preference is marked, especially if an attempt to change the child results in a speech defect, as it sometimes does, or in other nervous symptoms like nail-biting or facial tics, the child should not be forced. In such cases unreasonable discipline creates an unbalanced condition akin to mental chaos.

Orton* reports that most children seem to prefer the right hand; possibly 20 per cent of children can be trained to use either hand; but that a certain proportion are so strongly left-handed that they can be changed only at the cost of great nervous strain. Clinical evidence gathered from children who are found to be stuttering or otherwise nervously upset because of forced use of the right hand leads us to conclude that this small portion of strongly left-handed children should never be forced nor even urged to use the right hand.

Studies on the proportion of strongly left-handed children in the population are fairly consistent. Haefner⁴²¹ found 6.3 per cent of children strongly left-handed, and 4.9 per cent who showed mixed handedness. Wilson and Jones¹⁰⁶⁷ in a study of 500 cases of school children based upon the preferred throwing hand, found 6.9 per cent of males and 6.2 per cent of females using the left hand. When studying the proportion of children who write with the left hand, however, they found only 4 per cent using the left hand.

A good deal has been written in recent years about cerebral dominance, a native capacity by which one half of the brain dominates or controls the action of one half of the body, resulting in greater motor smoothness and skill in one half than in the

* Orton, S., in a lecture at the Merrill-Palmer School.

other half. "Right-eyed," "right-footed," or "left-eyed," "left-footed" have become terms almost as well known as right-handed or left-handed. Anderson³¹ summarized the work of several writers* on the subject of the relation of eye dominance as related to hand dominance, remarking that much of the recent literature is concerned with the relationship, on the assumption that the dominance of a particular eye determines the hand preference. He concludes, after a review of the literature, that the relationship between dominance of a particular eye and handedness is not at all clearly demonstrated.

All the studies show a considerable proportion of "crossed" cases, that is, cases in which dominance of the hand is opposite to the dominance of the eye. On the other hand, they also show that the great majority of individuals are both right-eyed and right-handed. The difficulty in securing an adequate interpretation of handedness arises from the fact that we have tended to consider the reaction of the hand as independent of all other bodily responses, largely because left-handedness is so striking in its manifestations and in extreme cases so little susceptible of training. The studies which seek to determine the relation of handedness to eyedness are a step in the right direction.³¹

Gesell corroborates this with his own work and through a recent survey of literature. He adds: "The results of this (his own) and other studies point to a higher relationship between handedness and footedness than between eyedness and handedness, or eyedness and footedness."³⁷⁴

Further Growth in Fine Motor Skills. Most babies begin to learn to feed themselves by reaching for the spoon and helping to hold the cup before one year of age. Most children of three, if chair, table, food, spoon or fork, and plate are right, can feed themselves without many spills on chin or tablecloth.

Little children cannot be expected to chew hard things with the mouth entirely closed and to observe perfect table manners. However, gobbling and gulping, smacking and smearing are unnecessary even for two year olds after the first preliminary stages of motor awkwardness are over. The baby "fist grip" on spoon or fork can be left behind by three year olds. Use of the knife for cutting and spreading is usually not possible before five years. Many children cannot cut any but the tenderest meat until they are six or seven years old. By ten years of age they have good control of their utensils and need help only occasionally.³⁷⁷

If clothing is made easy enough and if either a small toilet or steady step with which to reach the adult toilet is provided,

* See Bibliography. 102, 125, 220, 281, 602, 707, 766, 1076 An excellent summary of eye-hand dominance can also be found in Carmichael.¹⁸⁷

children of three can usually take care of themselves for urination. This does not mean that the child is free of bed-wetting or even entirely free of accidental daytime wetting of clothes at this time. Davis and Havighurst,²⁵³ in a careful study of practices in toilet training in middle class American families found that (p. 102) "up to the age of four or five, bed-wetting is to be expected in many children. As a rule, no child should be regarded as a confirmed bed-wetter until after six years of age." Wide-legged trousers and underwear simplify urination for boys, though width of leg should not be such as to expose the penis when the child sits, or to encourage a too frequent handling of the penis. Elastic bands in panties permit girls to slip them down easily, but should be watched to see that they are not too tight around the waist for comfort, or too loose to stay up. Both sexes need to be taught how to go to the toilet, to urinate so as not to soil the toilet or floor, and to keep clothing dry in the process. Bowel movements and wiping afterwards need supervision until six or seven years of age, not only because the child's motor skill is inadequate to do the job well, but also because the parent will wish to keep track of bowel elimination, its time, quantity, and character, for the sake of health. All children must have acquired efficiency in self-care at the toilet before entering school, and should be taught to report to the mother if daily bowel elimination fails to occur. Great care should be taken in training children for cleanliness that the training is not begun too young and that use of coercion and of shame or other forms of punishment is avoided. The psychological repercussions of such methods are serious.^{253, 661, 821}

Many mothers, busy with the care of younger babies, turn the chore of toilet procedure over to school-aged children without adequate check, only to find illness following in the wake of constipation. Quite frequently mothers think children have developed "dirty habits" when they find underwear soiled with feces, whereas all that is wrong is that the child has not yet learned how to wipe himself properly or has failed to appreciate the need of doing so. Here, as so often happens, is a "behavior problem" which is due to the fact that some learning is taken for granted when the child has had no opportunity to acquire that learning.

As in self-care at the toilet, self-help in dressing and undressing depends upon the type of clothing. Tiny, hidden buttons and hidden fastenings are impossible for little fingers to handle. Complicated belts and back buttons, long underwear, and full-length stockings are too much for even school-aged children to

smooth out. Simple yet warm clothing both for indoor and for outdoor wear are now available in many attractive designs for both boys and girls. Four to five year olds can manage the whole job of dressing except tying the bowknot on their shoes. This is a complicated learning achieved by most children only at six or seven years of age. Simple zipper, one-piece, out-of-door play suits can be managed by four year olds, but galoshes, even when comfortably large, challenge five year olds. Most five-year-old children can take a bath with help on neck, ears, genitals, and back, and help with drying. Such help with the bath or inspection of ears and neck is necessary well into preadolescent years.

Hand Skills Preliminary to School Work. Skills in manipulating pencils, scissors, and other materials preparatory to school work are accomplished by many children today before entering kindergarten since parents or nursery schools are providing opportunity to practice these learnings. Most children do little creative work with clay, paints, and the like before three, if by creative work we mean taking an initiative in design. Scribbling with pencil, crayons, or paints, or smacking and rolling bits of clay are usual activities of two year olds. Covering a page with color delights three and four year olds, who occasionally produce some quite telling effects. Consciously formed designs do not, as a rule, come before the late four- or early five-year period. Some four year olds who have older brothers or sisters in first or second grade will attempt to copy the drawings of man or house or the formal pattern designs which they see in the older children. Such crayon or paint work is seldom spontaneous in preschool children. If given ample materials and opportunity, however, the four- to five-year period is one in which scribbling and painting or cutting begins to take on constructive form. Lacking this opportunity, children who enter kindergarten at five usually have to do the preliminary scribbling and messing by way of first steps before constructive form develops.

Before a teacher can be intelligent in guiding children through such learnings she must understand the steps by which such development takes place. Gesell³⁷⁴ describes it clearly, having traced it in his studies of babies at Yale University. A baby of a year will cling to a pencil with his fist and scribble imitatively. Eighteen months of age finds most children able to make vertical strokes with a pencil. At two they begin to imitate horizontal strokes. By three years, Gesell reports an ability to inhibit and to delimit movements in both spontaneous and imitative drawings. At this age the child's strokes are better defined, more specific, and less repetitive. At four he can give concentrated attention

to the drawing of an isolated detail. He copies a circle and a square now, and can combine a horizontal and vertical stroke into a cross. At five he wields crayons with considerable assurance, and can draw a fairly recognizable man. He is sure of vertical and horizontal strokes, especially downward ones, but is still uncertain in oblique strokes, especially upward ones. He can copy a square and a triangle, but not yet a diamond, which he masters only at six or seven years of age. (See relevance of form discrimination to this in Chapter 9.)

Hand Skills at School Age. From six to twelve years of age control of arm, shoulder, and wrist muscles improves rapidly, reaching almost the adult level of perfection at twelve. Control of fingers progresses more slowly, however, and the fine control necessary for speedy writing or for delicate and rapid finger manipulation of musical instruments is not accomplished by most children before twelve years of age or later. Motor control continues to develop well into adolescence both in total bodily skills, as we have seen, and in finer coordinations.

The fundamental to accessory theory, taught for years in education and educational psychology courses, is on the whole substantiated by researches in the child development field. The larger muscles reach skillful control before the smaller muscles do. Fine sewing, detailed drawing, reading of small print, should be delayed until the child is eight or ten years old. We must not forget in our planning for young children, however, that even the finer controls, like eye movements and prehension, achieve a tremendous amount of their development in the first five years of life. Opportunities to scribble and "paint," to cut, and to mold clay, as well as opportunities to button one's own buttons, wash one's own hands, and to help with simple household chores should not be neglected in the preschool years.

From this it can be seen that children are not, upon entrance to school, prepared to write with anything but large movements, or to draw detailed objects on small pieces of paper. Smooth, legible, rapid *handwriting* is one of the most important tools for other learning and for the expression of learning which the school teaches. Most schools begin this teaching in the first grade. The first problem becomes one of getting the child's writing to be legible regardless of its size. There is some argument as to the form of beginning writing, some teachers claiming that manuscript (printed) writing reduces the child's confusion because he is learning to recognize letters in printed form in his reading. Other teachers claim that the child who learns manuscript writing only cannot read or write in the cursive style which is usual in

handwriting. Freeman³⁴⁴ suggests the use of manuscript writing at the beginning, but a change to cursive writing in the second half of the second grade.* Speed in writing should be reserved for the time when the child has conquered the muscular coordinations necessary to legibility, order on the page, and reduced size of letters. Grades IV to VI devote considerable attention to the problem of increasing legibility and speed in handwriting.⁷⁴⁷ There are many standards for judging what children have been found capable of doing in the various grades.^{464, 960}

In a study in grades IV, V and VI, Rowley⁸⁴⁹ found that there was no significant difference in native motor ability, as measured by tapping tests, between slow and fast handwriters. The differences between slow and fast writers was attributed to training factors, and the conclusion was drawn that slow writers could be greatly improved by remedial training.

It is a matter of common observation that, although there is a close relationship between intelligence and complexity of motor skills which the individual can achieve, many high grade feeble-minded children become superior in handwriting. One explanation of this probably lies in the interest factor. Feeble-minded children cannot master arithmetic or the other school subjects which require a high type of perception. They can achieve the motor skill necessary to copy material in handwriting. Since they can find some success in this area, they find satisfaction in the task and tend to practice much more than do children whose time and attention are absorbed by the subjects which challenge higher levels of perception.

The background for *drawing* has been portrayed as a consistent pattern by studies^{88, 433} which have been made of young children's drawings. At first, children explore whatever medium they are using, experimenting with ways of handling paint or crayon. This is partly learning how to keep the paint from running up their arms as they stand at the easel, partly finding how hard a stroke is necessary on the crayon, partly a sheer acquisition of finger and hand control. Most children will remain happy for some time with experimentations in how one color looks against another, will produce simple masses of color or scribble, often filling a whole page, or declaring themselves "done" with only part of the page filled.

Some effort to produce designs of line or color or both occur for children who have freedom to experiment at about three or three and one-half years of age. Once finished, children will often name what they have done. Only at four, however, will

* A good discussion will be found in Conard.²²⁵

most children attempt to draw or paint an object from a conscious idea. "Now I'm going to draw a rain cloud," or "I'll make a pig." A fatal mistake, which kills most children's interest in drawing or painting, is to make primary school children "copy a vase" or "draw this bunch of carrots." Drawing from imagination, like "painting the story we have just heard" or "drawing a picture of the trip we have just taken" is quite different. Here, the children are free to use whatever art technic they possess in the free portrayal of objects or situations as imagined. Emphasis on art in the primary grades, says Strang,⁹⁶⁰ should be on gradually increasing technical control both of art media and of the child's muscles, upon improved accuracy of perception of form and color, and upon the development of creative imagination.

Block building also follows fairly definite patterns of development.⁵³⁴ First, children simply carry blocks and manipulate them in irregular masses. By two or three years they place the blocks in regular rows or piles, building very simple structures like enclosures. Following this, structures become more complex, and by four or five years children use blocks as part of dramatic play. At five or six years only do children try to duplicate actual structures they see around them. As in many learning skills, children deprived of opportunity to play with blocks until five or six years, at that time go through the stages characteristic of younger children though, of course, more quickly.

Construction work with wood, too, follows a pattern for most children. First they must learn to use the tools. A two- or three-year-old child will spend considerable stretches of time simply pounding nails into a mat or soft block. Older children, first exposed to a work bench, will enjoy pounding nails, holding a board to saw along a line, and in other ways learning to manipulate the tools. Only when children can handle the equipment fairly adequately do they enjoy "making" things. At four years, for example, they like to pound three or four pieces of wood together for a wagon or chair or airplane. At five or six they produce a more acceptable piece of work, and there will be in the product some vague similarity to the boat or table the child set out to make. If compelled to "make" objects, or to shape materials to too fine a pattern, before the basic skills of hammering, sawing, and the like, are fairly well mastered, the child is likely to become too discouraged and give up shopwork in disgust. Building of doll and birdhouses, bookends, and fairly recognizable model airplanes follows for most children at six to nine years of age. Most first graders can participate in the building of rude houses, backdrops, and traffic signals for a play village.

Untidy, careless work in any manual skill should not be tolerated; yet, to drive children to a standard of perfection which they do not yet have the maturity or background of practice to achieve, results in making them hate rather than love manipulation of materials. Rapid growth in use of tools occurs from eight or nine years on for children who, in their first experiences, find joy and success. This is especially true, needless to say, for children who have some special talent in such work. Most upper elementary and junior high school programs find children delighted with the shop and the cooking laboratories. Some children before high school become quite skillful, being already more adept than most adults.

Clay modeling, too, proceeds through first steps which consist of simply handling, patting, pounding, and rolling the material itself. Only at six to nine years of age can most children make anything but the most rudimentary paperweights, or birds'-nests full of eggs. Bowls, animals, candlesticks with handles, and so forth follow only when the basic "feel" of the clay has been attained. Thus, as in general bodily control, we find children mastering certain basic skills before using them in play or to execute ideas.

IMPLICATIONS FOR EDUCATION

In light of the review of some recent studies on the growth of control of the body, certain suggestions to the field of education would be in order. To thoughtful educators who observe children closely, what follows will offer little new. There still persists in general educational practice, however, much that is in direct conflict with what is known of the growth of children. Hence it may prove worth while to make some suggestions.

In the Nursery School. The schedule should be free; the activities offered should encourage climbing, balancing, pushing, pulling, and other large muscle coordinations. "Drawing" and painting should be on large sheets and free to progress through the scribble and experimenting stages. Clay work should allow for pounding and manipulation without expectation that anything at all complicated will be produced. Cutting at three years is mainly getting success at free slashes, and at four years is only beginning to follow a line. Block building follows simple patterns and only at four years grows more complicated. Rhythms must not tax children by demanding galloping or other complicated forms of movement.

Toilet facilities should be fitted to the size of the children, should be immediately available, and adequately supervised. Play

space should be on the same level or not more than one flight of stairs away. If a roof is used, elevator facilities should be ample and safe.*

In the Kindergarten. Modern kindergarten teachers are quite accustomed to two groups of entering children: (1) those who do, and (2) those who do not have familiarity and skill with manipulative materials; and (1) those who do and (2) those who do not have the practice and independence which make possible self-care in removal of wraps, toilet procedure, and taking out and putting away materials. These teachers are also prepared to handle the child who has good general bodily skills in running, climbing, hopping, skipping, and should be prepared as well to help those children who are awkward, undeveloped and unskilled in rudimentary bodily movement. This is true also of handwork and the finer muscular skills. Children who lack preliminary experience with clay, paints, scissors, and pencils will need to do the preliminary experimenting which many other kindergartners will already have done.

The evidence on the development of handedness is clearly against forcing the use of the right hand in any child who seems persistently awkward in using it or who seems nervously disturbed by the necessity of giving up the use of his left hand.

Gutteridge's implications for nursery school and primary education seem worth quoting:

There is ample evidence in this study that young children show motor control and proficiency far in advance of the common belief and tradition, at least as represented by the equipment customarily provided for children of these ages.

It is suggested that the slowing down of the median curve of achievement so noticeable in certain activities after three years of age may be due not so much to completeness of motor development as to lack of environmental stimulation and challenge to further effort. In individual cases where there is apparent retardation in motor ability, study is needed in order to determine whether this is due to retarded physical development or to lack of opportunity suited to varying individual needs.

There is an evident lack of scientific standards for the motor education of young children. A further investigation of the existing equipment and provision for motor activity in nursery school, kindergarten, and first grade is seriously needed. The present findings indicate that the equipment now provided for motor activities is stereotyped and does not meet the requirements of the majority of children nor provide varying opportunities in line with growing abilities.⁴¹⁷

* National Association of Nursery Education, University of Iowa, has two publications on standards: (1) *Some Ways of Distinguishing a Good Nursery School*; (2) *Essentials of Nursery Education*.

Primary Grades. Every first grade teacher is familiar with the children who have manual experiences which make writing an easy next step, and also with those children so inexperienced in the use of their hands that writing readiness is obviously lacking. This will be true also of children who lack reading readiness which will be discussed later. Such children must begin at the beginning, scribbling, learning vertical and horizontal strokes, and the like, as well as becoming familiar with the "feel" of paper and pencil. These steps for normally intelligent children will be passed through quickly, however, and skill may develop so rapidly that any given child will stay "behind the class" only a few days. Children of retarded intelligence will, of course, remain longer in the preliminary stages.

In the first grade small writing or drawing movements cannot be expected of any of the children. Through the first and second grades art work should allow for free, large movement, and fine work which calls for detail should not be expected. School bands in the early grades are made up largely of percussion instruments, since most children of these ages are not capable of note playing on other instruments.

Plenty of provision should be made for free bodily movement. Seats should not be nailed down, but should permit free use of floor space for creative projects. Opportunity to hammer and saw, to daub and "mess," should be offered. Playgrounds should be available, and recess hours should be such that young children do not have to compete with older children for space or for equipment.

Upper Elementary. Grades three through six are the ones in which writing skills are perfected. Finer control over eye movements combined with increasing skill in form perception permit a gradual reduction in the size of print used in readers. At twelve years most children have no difficulty in reading newspaper. (See also Chapter 9 for further information about size of print.) Some schools now use either especially printed children's newspapers or regular newspapers as a basis for class discussion in fourth and fifth grades. Children appear able to handle a certain amount of this without strain. Details of design and finer shadings and lines are possible in art work. Many children in modern schools learn to play musical instruments with a fair degree of skill. Long hours of practice on musical instruments should be avoided, however, since children of this age need much outdoor play. Between eight and twelve years of age rapid increase in bodily control makes possible more complicated rhythm work and dancing, games requiring exact throwing and catching of balls,

and other tests of skill. This is a period when keen interest in competition leads many school people wisely or unwisely to encourage competitive track meets and other forms of individual athletic matches.

Physical skills are of such importance at this age that much social contact centers around them. The boy who cannot throw a ball or run fast becomes a group liability. The girl who does not roller skate or ride a bicycle with skill is likely to have a lonely time. Children who do not develop these skills offer a problem to the teacher or group worker. We have a lead from the L. K. Jack study* and from the experiments of the Institute of Juvenile Research in Chicago* which suggest the wisdom of individual coaching to improve skills which will prove useful in helping children to make group contacts.

Depending upon experience and interest, many girls as well as boys are fairly adept during the elementary school years in the use of hammer and nails, saws, and shovels. Boys as well as girls can carry dishes of soup or glasses of milk or cans of paint water; can straighten up a disorderly room, putting books, crayons, and so forth away neatly. Greater freedom in dress and movement for girls in the past quarter century has largely done away with the idea that girls are less interested in vigorous physical activity than boys. Until adolescence they scoot, swing, climb, run, skate, and ride with wide individual differences, but in general almost as skillfully as boys. Boys, on the other hand, with recent emphasis upon camp life, are proving to be skillful in dishwashing, cooking, bedmaking and mending. Self-consciousness about what is boy's work and what is girl's work seems to be largely the product of adult-implanted ideas which help to preserve a cultural tradition. However, boys as a whole seem to be somewhat more inclined naturally to more vigorous physical pursuits, whereas girls quite spontaneously tend to doll play and similar feminine activities.

Junior and Senior High School. With the suggestion from Espenschade's study and review of the literature that the peak of physical skills for girls occurs around fourteen to fifteen years of age, we might assume that programs which appeal to interest in physical skills would be wisely emphasized in the late elementary and early junior high school years. It still remains to be determined whether the slacking of physical skills for girls after this age is a change in potential motor abilities or a reflection of inadequate physical education programs in later junior high school and in senior high school. It is more likely, however, to be a reflection of our cultural expectation that girls become less active and more feminine as they reach sexual maturity.

* Described in Chapter 12.

The implications of the Espenschade study for boys is clear. Boys continue to improve in physical skills, at least through the seventeenth year. It is obvious that they carry the potential motor abilities for continuous improvement of physical skills throughout high school. Undoubtedly the cultural pattern which sets a premium upon sports and enhances the prestige of the outstanding athlete has a good deal to do with boys' interest in continued improvement.

Even though boys' interests and skills develop consistently throughout adolescence, it should be remembered that there are wide variations of physical maturation within any group of junior and senior high school boys, with consequently wide variations in skills. Stereotyped programs at this age may place some boys under strain while failing to challenge others. Moreover, whatever the level of skill for any individual boy at any given time, changes occur rapidly at this time, and skills may be very different at the end of a semester than they were at the beginning. Great flexibility of physical education programs should exist, allowing for much individual variation in level of skill at any one time, and also providing for each individual to change his participation as his abilities change even if this change must be made within any given semester's program. In any highly organized team sport, or in activities requiring highly developed individual skills, care should be taken to classify participants according to their skills so that a maximum of satisfaction may be obtained by the young people.

There is a further reason for variation in school patterns and expectations in junior and senior high school physical activities. Many children at this age find themselves "out of things" not only because of physical immaturity and awkwardness but because of heart defects, orthopedic (postural and bone) defects, or lagging energy due to rapid growth or poor nutrition. If a too great premium is placed upon motor skills, such children develop keen feelings of inferiority because they may fail to gain the prestige or confidence necessary for enough social contacts to provide social learnings. Thus, there may be added to a motor handicap a social handicap as well. Some plan should be kept in mind for helping such children to develop other skills which will be useful to them socially. Painting, story-telling, music, craft work of all kinds, and interest in nature can all be called upon to help.

Whether or not the tapering off of girls' physical skills at adolescence is innate or the product of cultural expectation is, perhaps, immaterial. That boys and girls differ in athletic interest and skill at an age when interest in each other becomes especially

keen is of significance in our planning for them. Programs planned for boys and girls together should demand only such simple motor skills as folk dancing or certain group games of low organization.

QUESTIONS FOR CLASS STUDY

I. Look up the topic of Motor Control in the current literature (since 1945). What findings corroborate or refute the material in this chapter?

II. Observe a physical education program in an elementary school. Was there enough of the right kind of equipment for the age group you saw? Was there too much equipment? What did the children do with the time they were there? Were they improving their physical skills? Were there adaptations for individual differences of strength, skill and interest?

III. Observe a physical education program in a junior high school. Answer the questions in (II). Also observe whether the program fits both the boys and the girls. Were differences in program made to accommodate the wide ranges in physical maturity?

IV. For each of the above observations report the general level of motor ability of the children. Is it at, above, or below average? What scatter of ability did you observe in each group, viz., how wide was the range of individual differences? How can a teacher (classroom or physical education) adjust the program to best meet the gross motor needs of the individual children in the group? How long is it reasonable to expect kindergarten children to sit still? Fifth graders? High school pupils? In view of this what adjustments in schedule and teaching methods are necessary from primary to intermediate grades? From intermediate grades to high school?

V. Can you see how an understanding of the causes for thumb-sucking, masturbation, etc., can be of use to primary school teachers? Discuss, as a case study in class, some child or children who suck thumbs and/or masturbate in school. Where did the habit originate? What treatment have the family and former teachers used? With what results? Can you recommend some more effective treatment?

VI. In what way does an understanding of the acquisition of early hand-control help a primary teacher to understand and, therefore, to guide the acquisition of handwriting skills? Select some child who is having special difficulty with handwriting. What causes his difficulty: poor motor skill? bad initial methods in handwriting? unfortunate attitudes? Whatever the cause, trace, if you can, its origin. What can be done to help the child learn?

VII. Same as VI for clay work, painting, cutting and pasting.

VIII. How much and what kind of toilet supervision should be given kindergarten children? How much and what kind of supervision with wraps? With putting away playthings? Do you think a kindergarten parent-teacher meeting might benefit from a discussion of clothing appropriate for school? Of attitudes and training to help children care for themselves at the toilet? Of cooperation between home and school in putting away toys? Suggest other topics which might be of benefit to both parents and teachers.

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9. GROWTH OF SENSE PERCEPTIONS AND JUDGMENTS

What Is Intelligence? We shall not review here the controversies over what intelligence is, since students using this book will doubtless be taking separate courses in educational psychology. In general, we shall consider intelligence as that sector of human life through which the individual learns about the things, people, and situations around him, and by means of which he deals effectively with them.

Intelligence Testing. There is a wealth of material in the research field dealing with the growth of intelligence as measured by the standard intelligence tests, or as tested by success in academic work in school. We shall not cover the discussion of intelligence tests here, since this area is covered in other courses in education.

As far as the measurement of intelligence is concerned, we would like to call attention to one mistake now prevalent in public school use of intelligence tests. It is a fairly general practice to give children intelligence tests upon school entrance as a basis for classifying them for academic work. Most of these tests are group tests, administered to a group of several to fifty children at one time. Only in a small percentage of the cases are the findings of such a group test checked by an individual test. As a rule, even though teachers are told to watch for evidence that children may need reclassification, it is a usual thing for the children to remain in the original classification until entrance to junior or senior high school, when a reclassification occurs.

There is a good deal of evidence presented in the various Yearbooks of the National Society for the Study of Education, the Yearbooks of the Department of Supervisors and Directors of Instruction of the National Education Association, and other research publication journals that (1) group tests are a good rough screen, but classify individual children incorrectly often enough to prove serious in the lives of many individual children, (2) even individual tests of younger children are so often inaccurate that their results

should be rechecked from year to year, and (3) that ratings on intelligence tests (IQ's) change somewhat as physical, emotional, and educational changes occur. The application to educational procedure seems clear:

If we give a child an intelligence test when he enters the first grade, we cannot be sure that the IQ obtained at that time will remain a good index of his ability throughout his school career. The validity of an IQ depends, among other things, on its recency, and more especially is this true of very young children.⁷¹

Why the Teacher Needs to Understand the Steps of Intellectual Growth. If the lay person were asked what he considered the business of the school to be, he would probably make some remark about teaching people to be intelligent. The teacher cannot, however, bring her own intelligence effectively to bear on the training of "intelligent" behavior in her pupils unless she thoroughly understands what stage of intellectual development any given pupil is in, what steps he has already taken, what steps lie ahead of him, and especially what steps he should take in the immediate future while under the supervision of this particular teacher. In the past most teachers have depended for their teaching content entirely upon the detailed steps of the official curriculum handed to them from the superintendents' office: two times tables in the second grade, simple division in the third, beginning long division and a big book in geography in the fourth grade, decimals in the sixth grade. These curricular prescriptions are well set for the average performance of the mass of children. However, they ignore the individual child. They bind the teacher by the page by the day. Teachers can be free only through understanding of the process of intelligence which it is their main business to develop. We shall, therefore, devote most of the next three chapters to presenting some of the current knowledge about the steps by which intelligence grows.

A Schematic Way of Thinking about Intelligence. In discussing the specific patterns of how intelligence develops, some help may perhaps be obtained from seeing the various aspects of intelligence in relation to each other. Figure 36 serves as one way of picturing this relationship.

No intelligence would, of course, be possible apart from the body in which it lives, and through which it expresses itself. Without a sound brain and nervous system, intelligence cannot exist or develop excepting in a most primitive or rudimentary fashion. Although there are cases of fine intelligence existing in badly deformed or paralyzed bodies, the usual pattern of development of intelligence

in the great mass of children depends in an important way upon the use and control of the body's bones and muscles.

Intelligence is entirely dependent upon the sense organs (eyes, ears, taste, smell, and touch organs) for development. A serious

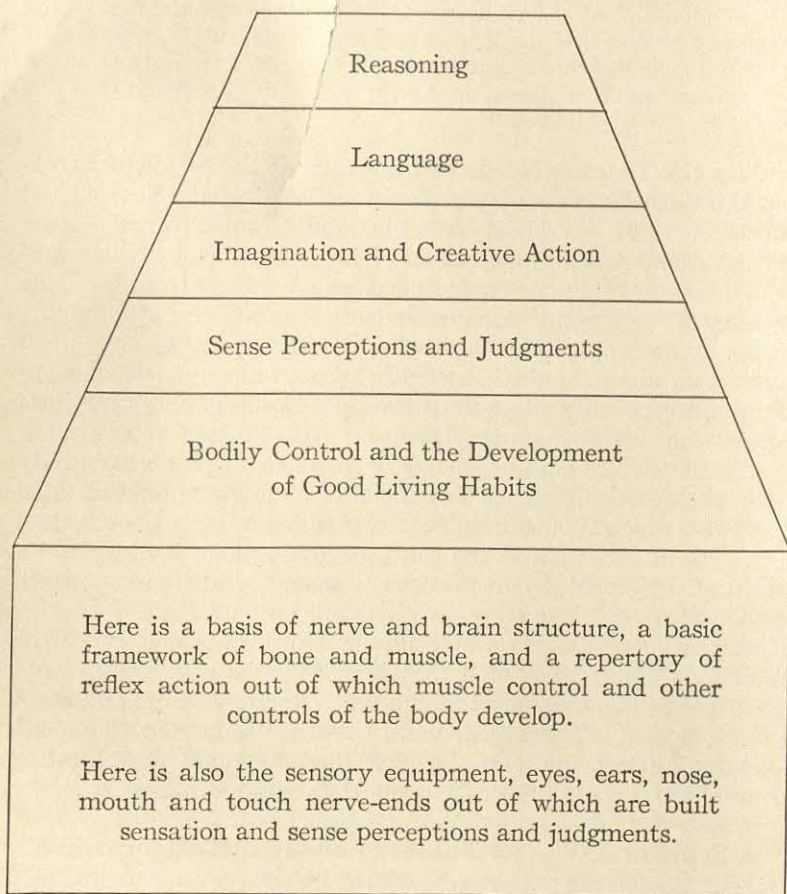


Fig. 36. A device for picturing how the various areas of intelligence are inter-related.

deficiency in one of these may not impede intelligent behavior too much, but serious defects of more than one prove fatal to the intellectual development of nearly all children. Helen Kellers are rare, indeed. On the basis of what comes to the child's intelligence through his sense organs he builds increasingly accurate interpre-

tations of the world around him. In other words, he builds increasingly accurate sense perceptions and judgments. In proportion as these interpretations become accurate he becomes able to deal with the objects around him. The building of conceptions and ideas, of imagination and creative action, is an important step in the improvement of the quality and usefulness of intelligence.

The development of language is one of the most important human means of improving and of expressing intelligence, since the child learns to interpret and to react to the world about him far more rapidly when he has the help of communication with people more experienced than he is.

Throughout our recorded history and in all of our literature, reasoning is generally considered the crowning achievement of the intellect, the supreme evidence of man's intellectual superiority. It is an outgrowth of the other foundation skills, dependent in very important ways upon them. Even language exists in man's repertory of behavior mainly as a tool for reasoning.

If the training of the intellect is an important business of the school, then training of each of the foundation structures which lie beneath intellect's supreme accomplishment, viz. reasoning, is to be considered important business of the school. This means specific training in bodily development and control, in good living habits, in wide and accurate sense perceptions and judgments, in language facility, and in reasoning itself. Any school which fails intellect in any of these areas cannot be said to fulfill that first job for which it was created and for which it continues to be financed.

Differences in Rate of Intellectual Development. There is an exceedingly wide variation in rate and ultimate level of intellectual development, ranging from low grade idiocy through outstanding genius. The causes for these differences are both hereditary and environmental, as was pointed out in Chapter 2.

Defective grades of intelligence are often accompanied by (or caused by) defective bodily conditions. From the medical point of view, feeble-mindedness is often defined as

... a state of incomplete or pathological development of the organism which is significantly reflected in subnormal or abnormal structure and function of the central and autonomic nervous systems. This in turn limits the growth of intelligence which is manifested in educational, behavioral, and social incompetence.²⁷⁸

Heredity or accidents of prenatal or early childhood environment produce the from 1 to 2 per cent* of the population who are incap-

* Estimates differ from 0.3 per cent to 4 or 5 per cent, depending upon methods of selection used. Percentages vary significantly depending upon age, locale, sex, degree of deficiency used as definition, and the like.²⁷⁸

able of profiting from instruction. The degree of incapacity to learn varies from the idiot through the moron. Doll²⁷⁸ defines these as follows (p. 873):

The idiot is grossly retarded in mastering the rudiments of selfcare, the beginnings of linguistic expression, and the simplest forms of occupational activity. The imbecile masters these but makes no progress in scholastic subjects. The moron may learn the scholastic rudiments (up to the fourth grade) but rarely makes appreciable use of such accomplishments.

Since the lower grades of these children offer such difficult problems of care in the home, and since none of these grades of intelligence can profit from the usual public school instruction, nearly all states make provision for caring for them in State Schools for the Feeble-minded. Here special educational programs are set up which utilize concrete materials, situations, and the endless repetition necessary. Morons can usually be given some degree of occupational competence in the simple work tasks.

Morons should not be confused with the lower levels of so-called normal intelligence, the latter being a large group (estimates run as high as 15 to 20 per cent) of children who, because of their inherent level of development of intelligence, cannot proceed through school at the usual rate of one grade each year. Rural, small town, and parochial schools seldom make provision for these children. Most larger school systems have special classes for them which provide for less academics and more concrete learning than the usual curriculum.

In contrast to the feeble-minded and slow to learn are the gifted in intelligence—those who develop more rapidly and to higher levels than other children in thinking, reasoning, and making judgments. Rated in terms of I.Q. those children who measure 140 or over are 4 or 5 of every 1000, those who measure 130 or over are 8 to 10 out of every 1000.⁷⁰⁸ These children do not always turn out to be adult geniuses, since some able people are not trained to make the best of their abilities or do not take a desirable amount of responsibility for the use of training and ability they possess. Genius, too, is made up of other talents than sheer intellect, the creative abilities being at the root of much outstanding accomplishment.

Heredity as well as early environment is of importance in the origin and development of gifted children as it is for the feeble-minded. The majority of gifted children stem from families of professional status who are leaders in their communities. In Terman's⁹⁹⁰ study of children in California who possessed I.Q.s of 140 or over, 51 per cent were of British descent, 17 per cent German and Austrian, 10.5 per cent combined Jewish stock, 6 per cent

French, 4 per cent Scandinavian. These percentages must be interpreted in light of the percentages of these stocks present in the California population. Negroes, Mexicans, and Chinese were found among Terman's genius group. Jewish children predominated in Hollingworth's New York City genius group.⁴⁷⁴

Gifted children have relatively fewer physical defects such as defective hearing, mouth breathing, headaches, or other symptoms of nervousness.⁷⁰³ Terman's study showed that, other things being equal, gifted children are in better physical health than an unselected group. Gifted children go to school early and advance rapidly through the grades.⁷⁰³ Of Terman's group, 85 per cent skipped one or more half grades. In terms of mental age, however, gifted children are seldom if ever in the grade which would utilize their ability even approximately near its maximum capacity. Social contact factors have, quite wisely, led most schools to keep these children with a group of children somewhere near their own chronological age. Many schools meet at least part of the need of gifted children for more and better training than the average child by offering enrichment of curriculum and individualized instruction. Many of these children come from families that can and do afford private school instruction.* Gifted children stand out in their school work in such areas as debating, history, composition, literature,† grammar, general science, geography, civics, reading, and arithmetic. The weakest subjects of gifted children are those requiring manual coordination or dexterity such as handwriting, art, and handiwork.⁷⁰³ They often take lessons outside of school in such special activities as music, drawing, painting, dancing, and languages. Gifted children show far more favorable social development than do unselected children.⁹⁹⁰

DEVELOPMENT OF SENSE PERCEPTIONS AND JUDGMENTS

We have already discussed the child's physical development and his development in the control of his body. Let us turn now to his development in the field of sensation and sense perception.

As we have said, intellect grows in most important ways through the constant accumulation of impressions which come into the central nervous system from the surrounding world by means of

* For an excellent discussion of school adaptations to gifted children see Miles,⁷⁰³ pp. 931-935. This article also gives an extensive bibliography on gifted children.

† Over half of Terman's group had learned to read before starting school. Their parents had seldom coached them but had simply answered questions and showed an interest in the child's interests.

the sense organs and the central nervous system. One may see and hear, smell and taste and feel, but sensation alone is not enough. Until, through experience, sensation comes to have meaning and to be understood, one's reaction to the world remains unintelligent.* One does not automatically judge the size, shape, distance, or other qualities of objects; one learns to judge them. Probably one of the clearest differentiations between a mediocre and a brilliant person is to be found in the speed and accuracy with which he "sizes up" situations and in the discrimination with which he reacts to them.

The Newborn Baby Must Learn to Use His Sense Organs.

The newborn baby has eyes and ears, nose, mouth, touch, pain, and temperature sense organs. Impressions come in to him through his sense organs but he does not interpret these impressions. An important part of learning in the first days and weeks of postnatal life consists of learning how to use the eyes to see with, the ears to hear with, the nose to smell with. Once the infant has learned to see and hear and to use his other senses his intellect begins to store up a multitude of impressions from the outside world. Also important not only to the intellect, but to the development of personality and emotional reactions as well, are the impressions which come to the baby from his own body. Feelings of hunger, of fatigue, of need for movement; feelings of well-being and security or of discomfort and insecurity are among his inner impressions. All these sensations reach his intellect and build the bases for later intellectual behavior.

We do not even know just how much newborn babies see or hear or taste or smell or feel. They have no language but the cry or relaxed well-being, a start or jerk or reflex action with which to tell us their reaction to the various stimuli which affect them. We have many excellent studies of the sensory equipment and sensory reactions not only of neonates (newborn children) but also of fetal (intrauterine) reaction.†

Sensory Equipment and Beginning of Development. It is fairly well agreed that, although the neural mechanism involved in hearing, taste, and smell are developed in the late fetal months,¹⁸⁸

* This will be explained more fully later.

† A recent comprehensive study of the literature on development of the sense organs appears in Carmichael.¹⁸⁷ An excellent summary of these studies is presented by Evelyn Dewey.²⁰⁸ Another outstanding summary of the studies on young infants, especially in the field of sensory development, appears in Munn.⁷²⁰

Gesell at the Yale University Clinic of Child Development has done some of the most careful studies of infant development and has published a number of books and movies on the subject, the best summary being *The First Five Years*, Harper, 1940, and *The Child from Five to Ten*, Harper, 1946.

babies do not have full use of their sensory equipment at birth. In most sensory areas like temperature, taste, smell, however, fairly accurate discrimination is displayed within a few weeks of birth. Part of the sensory inadequacy at birth is doubtless due to incomplete development in the nervous system and brain centers. These centers, however, develop early and are almost fully mature at three years of age and are quite mature at six years. Part of the inadequacy is due to the fact that the baby has not yet learned how to control the muscles involved in vision and hearing. Part of it is due, too, to the lack of experience which leaves the baby without meaning or understanding of things he does see and hear, taste and feel. So inadequate are these sensory abilities that young mothers sometimes become panic stricken thinking their babies are blind or deaf when they fail to focus eyes intelligently or to give evidence that they see or hear some special stimulus.

The Sense of Touch and Pain. The sense of touch seems to be the most nearly perfect in functioning at birth,⁸⁰⁹ a slight touch on the cheek setting up the sucking reflex, or on the nose causing a closing of the eyes. Bath temperature which varies much from lukewarm causes crying and struggling, and all writers agree that the temperature around a baby should not vary markedly or he will give evidence of discomfort. He does not, however, react strongly to temperature variations applied to small areas of his body, and he seems fairly insensitive to pain like that caused by blisters or scratches.

Studies^{276, 888} show that infants do not respond to needle pricks or electric shocks in the first four or five days of life, but that they learn to respond within eight or ten days. Colic pains cause screaming by six or eight weeks of age, and from then on children seem to suffer pain much as adults do. They, of course, express pain and the fear that severe pain arouses by screaming. The progressive lessons in courage and self-control in the face of pain which our culture tries to teach begin in most instances around two or three years of age when parents try not to appear too concerned over minor injuries, and even try to encourage children to stop crying. By the age of five or six most children have already developed a substantial margin of self-control when in pain. Brooks¹⁴⁴ reports a decrease in sensitivity to pain at around eleven to twelve years of age. In some primitive societies boys have already become stoics by the time they are ten years old. Our training in gang experiences disciplines boys not to cry when hurt, and even pokes fun at girls who cry too easily. The child who remains in an infantile stage of reaction to pain through indulgence and oversympathy from parents, or through missing gang discipline in this regard,

suffers a severe handicap in later life. Lessons in courage when in physical pain are fundamental to the later learnings about courage in the face of difficulty, defeat, and other psychological pain. However, such lessons must not be overdone, since nothing shakes the emotional security of a child more than to be in genuine pain or danger and find himself without sympathy and support.

The Sense of Smell. The neural mechanism for the sense of smell is developed before birth.¹⁸⁷ Avoidance of strong odors like petroleum or oil of amber and the quieting of crying when a drop of milk or perfume was presented to the nose led earlier writers to assume a greater sensitivity in smell than has since proved to be the case.¹⁸⁸ Investigators on the whole^{275, 810} have found that although infants seem to react to intense odors they do not react to olfactory stimuli as adults do. However, year-old children frequently sniff flowers or other objects in imitation of adults, and two- or three-year-old children seem as reactive to unpleasant odors in a room or neighborhood as are adults. There are individual differences in sensitivity to odors as there are in taste. As children mature both senses can be trained to detect small differences in odor or flavor.

The Sense of Taste. Opinions about the development of the sense of taste in infants differ. Most experimenters report that sweet flavors are reacted to first. Salty, sour, and bitter tastes are distinguished with more difficulty.¹⁸⁸ The fact that preschool children will take cod liver oil directly from the spoon and reach out to lick off the last drop makes some people wonder if the sense of taste is not defective even at that age. However, this latter instance is only one of many which indicate that children will accept a wide variety of tastes such as cod liver oil, turnips, liver, and other strong tastes if these tastes are offered without prejudice. They will, however, refuse them if the adult makes his own distaste for such foods evident.

The Sense of Hearing. The neural mechanism for hearing appears to be well developed at birth but amniotic fluid in the Eustachian tubes keeps the baby deaf for a few hours after birth. Once the amniotic fluid is cleared, babies react to sharp, sudden, harsh sounds. Within ten days reaction is elicited by the tick of a fairly loud watch or by the human voice. Pitch discrimination and reaction to other complex sounds probably does not exist in infants,⁸⁰⁹ but develops later. There is evidence that acuity of hearing continues to develop until it reaches a maximum in pubescence.⁸²⁸

The child's development in reaction to music and to spoken words will be discussed later in Chapter 11. What he learns to like or to dislike in the way of sounds seems to be a product of (1)

his own sensitivity to sound, (2) a reflection of the tastes of the people about him. Some children have a lower threshold of sound (are more sensitive) than others. Occasional nursery school or primary children will hear the hum of an airplane engine several seconds before the average adult, or will call the attention of older children and adults to bird calls or other sounds not noticed by them. An occasional child has "absolute pitch," and can identify any given musical note correctly; some children have a far lower difference threshold of sound even than adults, and can, therefore, detect finer differences of tone or sound than the average adult. Apparently these differences are in part native, and in part due to early training. Preferences in sound seem largely determined by training and pattern set by admired adults or peers. Much can be done, and is being done, in nursery schools and in elementary and secondary schools to train children to love good music, to enjoy nature sounds, to appreciate fine speech, and in other ways to improve their reactions to sound.

The Sense of Sight. The sense of sight is probably the least perfect of the sensory reactions at birth, and seems to be the slowest in reaching full maturity. The neural mechanism for sight begins to develop in very early fetal life, and continues to develop until well after birth.¹⁸⁸ Although a certain amount of muscular control of the eardrum tension is necessary to hearing, this seems to be acquired fairly easily. The muscular processes involved in obtaining accurate vision are more complicated, and therefore take longer to acquire.

In order to focus light properly upon the spot of keenest vision on the back of the eye, two quite fine muscular processes are involved. One controls the movement of the two eyeballs so that they may both come to rest in line with the object to be seen. As we saw in Chapter 8, as late as a year, and in some children two years, this muscular control is still imperfect and the child's eyes appear to be "off center" for a moment now and then. This temporary loss of control is not the same as the permanent muscular imbalance known as strabismus, or squint (see Chapter 7). The second muscular adjustment necessary to clear vision is the adjustment by which the thickness of the lens is controlled to focus light from near or distant objects so that the light rays come to proper focus on the retina. This is a very fine muscular adjustment and seems to require a good deal of practice.

However, complicated as are the muscular adjustments of vision, most infants have sufficient control over their eyes to see larger objects, like the approach of persons, within two or three weeks. Just when tiny babies are able to see can be judged only by their

total bodily reactions. Later, when they have control of their hands, we have another aid to judgment if the child reaches for the object. His reaction will, however, depend not only upon his ability to see and his ability to control the muscles involved in reaching, but also upon whether he knows what the object is for or, at least, upon whether he wants it or not. The baby may see his mother's approach before he has come to associate her with physical comfort. We can only be sure that he sees her or any other object when he starts wriggling or stops crying or gives some other sign when she approaches. Both the psychological association of meaning ("mother means comfort"), and the control of eye muscles necessary to see an object as large as an approaching person have been accomplished by most babies within two months of postnatal experience.

Most babies have acquired fine enough control over the mechanisms of vision and of reaching by four or five months to enable them to see inch cubes as evidenced by their attempt to grasp them. This depends upon grasping and reaching accomplishments, and it is quite possible, as before, that he sees such a fine object before he can give us sure evidence in his behavior toward it. The same is true of his picking up pins and specks of dust at seven to eight or nine months, this being dependent upon a development of the pincer technic of using the hands, and upon being on the floor where such small objects come within his range. However, we have this final evidence that by seven to nine months the actual mechanism for keen vision, at least of near objects, is almost perfectly developed and almost perfectly under control. This represents a great deal of learning.

However, even though babies of six or seven months have learned momentary control of the mechanism of near vision, this control is still so imperfect at school entrance that no strain should be put upon it. In view of the clear-cut demonstrations which the children themselves give us of their ability to see tiny, near objects, most people have generally accepted the idea that children of six years can see as well as anyone. The eyeball does not gain its full weight until after seven years of age, or its full development until several years after that.⁶¹³ As we saw in Chapter 7, the young child is farsighted as measured by adult standards, although he has a wide range of focus. He tends to look closely at objects, often holding things quite close to his eyes in order to make objects look larger. He should not, however, spend much time looking at small things close by. Schools which require such close fixation over long periods of time may be encouraging nearsightedness.

A study made in England by the British Association for the

Advancement of Science through a Committee to Inquire into the Influence of Textbooks upon Eyesight set up the following standards for type:

24 point for children under
7 years

18 point for children 7 to 8 years

12 point for children 7 to 9 years

11 point for children 9 to 12 years

10 point for children from 12 years up*

A more careful study which considered size of type in relation to length of line was reported in 1931 by Buckingham¹⁶¹ who recommended for second grade children: 12 point type in lines $2\frac{7}{16}$ inches to $3\frac{1}{2}$ inches long with three or four point leadings (3.25 or 3.60 min. interlinear spacing). This study did not consider whether this type setup would be optimal for continued reading.

What Is Meant by Sense Perception?† A sense perception is a sensation which is understood. In other words, the sight seen or the sound heard is recognized. It is difficult to draw a sharp line

* Report of the Eighty-Third Meeting of the British Association for the Advancement of Science, Birmingham, England, 1913 (London, John Murray, 1914, pp. 268-300).

† Kingsley⁵⁸³ discusses perception as follows: (p. 261): "A large part of our learning is accomplished through perception. In the first place, we learn directly about things by observing them. In addition to this, perception often plays an important part in other learning activities. It fuses with action. . . . It is essential to learning by imitation. It furnishes the experiences that promote understanding and augment reflective thinking. Without it we could have no memories, no imagination. It is the initial step in most of our emotions. Through perception we learn, and without perception there could be no learning except possibly that of the most primitive and meager sort. But what is probably not so fully realized is the fact that we also learn to perceive." And again (p. 266f): "Our perceptions do not come ready-made. They grow, and in growing they change. They are enriched in detail and become more definite, refined, and specific. Like action, under repetition they tend toward economy of performance by the elimination of superfluous adjuncts. . . . The principal modifications are alterations in the sensory patterns, changes of meaning, reduction of cues, and greater adroitness in detecting small differences." Later he states (p. 274): "Just as we acquire motor skill through repeated action so we acquire skill in perception by repeated perceiving."

between the nerve development which makes it possible for accurate sensations to reach the brain on the one hand, and the almost immediately accompanying psychological interpretation of the meaning of these sensations on the other hand. However, we can see this difference in the occasional individual who has the neural development and the muscular adjustments necessary to translate sound waves into nerve impulses and in turn into consciously felt sensations of sound, yet who lacks the necessary neural mechanism by which associations are built up. Such a person cannot, therefore, learn to interpret the meaning of the sounds heard. He could hear a human voice, but could not understand what the sounds meant. He would have auditory sensations as the result of words spoken to him, but he would have no perception or understanding of the meaning of the sounds. This is a rare instance since few normal adults experience such raw, uninterpreted sensations, because when brain and nervous system are normal, experiences build up so rapidly that even new, previously unknown sounds, carry meaning to us at once as "sounding like" something already known. The unexpected and unfamiliar bugle of a Rocky Mountain elk, for example, may for an instant remain meaningless to the novice, yet almost at once the fertile mind of the normal adult produces previously experienced associations: "That is a strange animal call," or "That must be a coyote yelping."

How Perceptions Develop. Young children, limited in experiences, often know raw, or uninterpreted, meaningless sensations. Yet, so fertile is the human mind, and so rapidly do experiences and associations build themselves that children of two are already past the stage in which they frequently experience sights, sounds, or other sensations for which they fail to have some associated meaning. The infant of a few weeks has already connected the feel of hands lifting and tending him with the comfort which follows, and will stop crying at the touch of his mother's hands even before the comfort has been produced. At first the baby's understandings are limited to the things and experiences which come within the range of his immediate environment. Feeding and other physical actions, his mother's face and the touch of her hands and his own physical sensations seem to make up his conscious world. But as voluntary control over his eyes and other parts of his body develops his range of conscious awareness widens. Sounds, too, come to have wider meaning for him, and he can be seen listening intently to the sound of a bird chirping, a car siren, a piano tone. Eventually he learns to interpret the sounds which are spoken language, and as this becomes possible his understanding of and knowledge about the world advance rapidly. Touch opens new worlds to him and volun-

tary reaching and grasping are followed by eager manipulation of every object which comes within range.

The Correlation of Perceptions into Meaningful Wholes.

Not only is the child in his first year of life learning the use of eyes, ears, touch, smell, and taste, and rapidly building associations around each of these; he is also tying the sense perceptions from each sense together with those from the other senses into meaningful wholes. Something with a handle and which looks round, smells like celluloid, tastes a certain way, makes a certain noise when waved about: all these together become the familiar rattle. A certain face plus a certain voice, plus the feel of certain hands ministering comfort: these come to mean Mother. Another face plus a different voice plus strong tossing about for fun come to mean Father. All this occurs purely as sensations plus associated meanings and certain exceedingly important emotional tones. No spoken language, no calling of names is involved in this aspect of the building of perception. A rattle is not the spoken or as yet clearly heard word "rattle"; it is simply a sight, a touch, a taste, a smell, a rattling sound. Mother is not in the early stages "Mother" or "Mamma"; she is something seen, something heard, something felt. And so with the rest of the world around. One soon learns to suck on a bottle in order to obtain something which can be swallowed with resulting comfort inside of one. One does not try to eat Father; one wriggles in anticipation of a romp when Father appears. And so the building up of intelligent reactions to things and situations goes on.

Names for objects and actions soon follow, but are a separate mental process and not to be confused with the building of the fundamental sense perceptions. Accuracy in judging the qualities and uses of objects develops quite apart from the naming of them. As we shall see later, children can react accurately to color as demonstrated by sorting of colored cards or blocks and by uses of color in painting some months before they can name any but the primary colors. On the other hand, children can glibly recite, "One, two, three, four, five, six" long before they have any clear perception of the meaning of "three" or "four."

Perception of Size. After the first awareness of general objects and situations are fairly well established there follows a breaking down of the general reaction into more specific parts. An infant will react to a tiny doll bottle with the same reaching expectancy that he uses to react to his own full-sized bottle. As yet size of objects has not been separated out from the other qualities like shape and general appearance. A year-old baby may occasionally be seen to reach for the moon as eagerly as for the ball in his play pen.

Distance has as yet no separate meaning to him. Mistakes of size, shape, weight, and the like are still being made by children of three to five years, even on common objects with which they are in general thoroughly familiar.

What size means, viz., that a large object occupies more space than a small object and will not, therefore, fit into the smaller object, is a concept foreign to infants. One of the favorite toys of eighteen-months- to two-and-one-half-year-old children is a nest of five-sided, hollow cubes which fit into each other. They are only blocks to handle and throw or to stack by chance to the eighteen-months-old child. But in time he finds that some of them slip inside of the others. With help a two-year-old child will learn to call the one which goes inside of the other "little," and the one which goes outside "big." Eventually he will learn that the one which goes inside of all of the others is the "littlest" and the one which will not go inside of any of the others is the "biggest." By two-and-one-half years most children can look at the cubes and without trial and error pick the biggest, then the next biggest, and so on to the littlest, either placing them inside of each other accurately or stacking them into an orderly graduated tower. From such toys or from the kitchen cupboard pans and covers they can learn that size is a property which all objects have, that it means the amount of space the object occupies. At the same time they are usually learning the conventional language names: "big," "little," "large," "small," etc.

Confusions of size persist in occasional instances for most children even into the fifth year. In play three-year-olds may get so carried away with the imaginative house play with doll furniture that they will temporarily submerge the as yet imperfectly formed judgments of size. One can see them for a moment forgetting to realize the size of tiny doll furniture and attempting to sit on it themselves, only to look surprised, and often a little sheepish, because they failed to react accurately to this quality of the object. A three-year-old can be seen trying to ride his tricycle through an opening too narrow or too low for it. Probably because the child sees himself less than he sees other objects he usually misjudges his own size later in his development than he does the size of other objects. Four-year-olds, for example, can be seen trying to sit in an adult chair as an adult does, back against the back and feet on the floor, and looking puzzled because they cannot fit themselves into this position. Although these misjudgments are not typical of daily play, such instances show us that perception of size is not automatic even at four years of age.

Perceptions of Shape: General Forms. Judgments of shape must, like those of size, be learned. Oddly enough, we do not see shape instinctively any more than we do size, but rather, we must learn how to react accurately to the factor of shape. A two-year-old child, given a form board (see Fig. 37), almost at once catches the idea of placing the figures into the available holes, but he will try to fit the pieces indiscriminately, pushing the square into the round hole at random. He will select the smaller pieces for the smaller holes, and the larger pieces for the larger holes, but will confuse the shapes, trying to put the star in the hole meant for the cross, the half circle in the space meant for the cross, the half circle in the space meant for the elongated diamond. Most children cannot use such a form board with accurate discrimination of both size and shape until they are four years old.

Children differentiate squares, circles and triangles first, diamonds, crosses and more complicated shapes later. One test in the

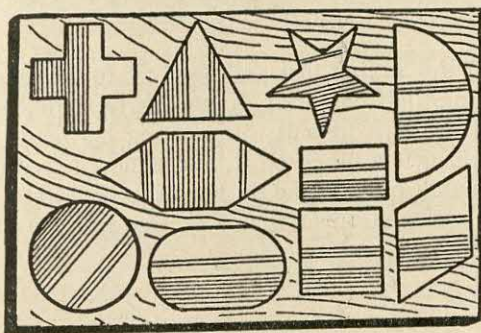


Fig 37. Sequin form board. (Courtesy of C. H. Stoelting Co.)

Binet Mental Test Scale (revised by Terman in 1937) requires the child to copy a square at age five, using pencil and accomplishing one correct drawing in three trials. Most children of less than four years of mental age scribble, or produce a cornerless drawing resembling an irregular circle (Fig. 38). Until after four years of mental age they fail to see the difference between their own drawing and the clearly marked square which serves as a copy.

A second test of form discrimination, like the above, requires not only form discrimination but also rather complex motor control and eye-hand coordination. It requires the child to copy a diamond at age seven, using pencil and accomplishing two trials out of three. These latter requirements are, of course, more exacting, and the test does not imply that discrimination of the diamond shape plus copying it are two years harder than the square. However, we have chosen to mention these tests because an interesting

thing happens which gives us some insight into the development of form discrimination. As a rule, children of mental age less than five to five-and-one-half years in copying the diamond produce irregular triangles, or manage the two top lines of the diamond then wander about trying to get the two lines together again

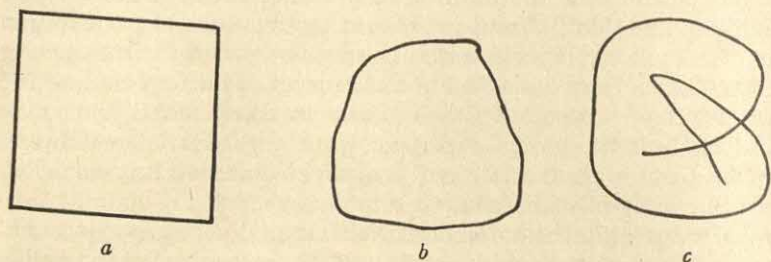


Fig. 38. *a*, Square to be copied. *b* and *c*, Squares as drawn by children of mental age less than four years.

(Fig. 39, *b*, *c*). At around five and one-half to six years of mental age the right and left corners become clearly significant, perhaps because the child has difficulty in steering his hand by his eye. The first corner gets a hump on it, and almost inevitably he feels impelled to match his mistake on the other side (see Fig. 39, *d*). This impulse seems stronger than the urge to keep the copy ex-

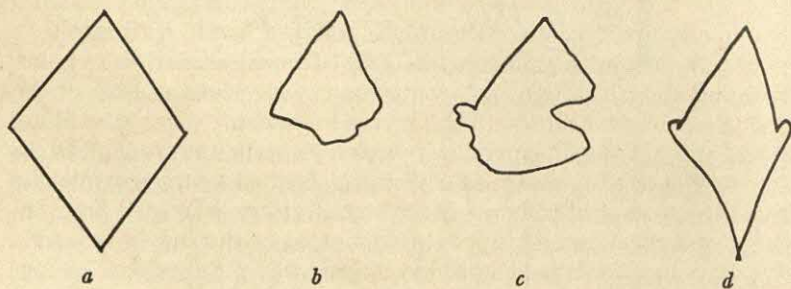


Fig. 39. *a*, Diamond to be copied. *b* and *c*, Early trials. *d*, Five and one-half to six years.

actly like the original, and indicates the significance of corners in determining accurate spatial discrimination.

Perceptions of Shape: Letter Forms and Other Fine Shapes. Ability to discriminate between letter forms is fairly well in hand by five years, since some children of five can recognize many of the letters of the alphabet when printed in capital forms, and can, before their sixth birthday print, in staggering sizes and

alignments, the letters of their own names. This facility should not be coached or pushed, however, into "reading" and "writing," since to do so would place undesirable strain upon all but the most exceptional children. Even six and seven year olds have difficulty in making such fine discriminations of form as that between "p" and "q," "b" and "d," "3" and "E," and such similar word forms as "hat" and "hot." Great patience is necessary in helping children to take such an important step in the lowering of their difference thresholds of form discrimination as is necessary before reading and writing can be mastered. Children who are conspicuously slow may be lacking in the general experience with a wide variety of objects which teaches hand and mind to analyze detail and to react discriminatingly to small or subtle differences in form. Children make rapid progress in the differentiation of small differences in size and shape throughout the elementary school years, ages six to twelve. Even three-year-old children enjoy a simple two-piece jig-saw puzzle. Six year olds love such puzzles with around ten to twelve fairly large pieces. Children of nine to twelve years rate puzzles among their dominant interests, and the jig-saw puzzle of increasing complexity continues to hold interest as a challenge to accurate form discrimination throughout adulthood if the puzzle is complicated enough.

Aids to Learning about Shape. Children a generation ago had many natural opportunities to explore objects and thus to develop accurate perceptions of size and shape which those children who live in city apartments or slums lack today. Playing with mother's pots and pans in the kitchen, "helping" to wash dishes, or to bake, roaming about through the several rooms of a house and about the yard, listening for bird sounds, playing in sand and digging, keeping pets, etc. were all experiences which contributed to children's knowledge of the properties of objects. A small apartment, with a maid to do what little housework there is, or the restricted environment of a city slum deprives children of such learning experiences. We have been compelled to find substitutes. "Educational" toys have been created and nursery schools and kindergartens have given much attention to providing the type of experience which trains sense perception. Montessori's equipment was designed as foundation training devices for familiarizing children with sizes, shapes, textures, sounds, and so on, emphasis being placed upon training reaction to the finer differences in bigness or littleness, in graded sounds, and the like. Definite training in recognition of finer and finer gradations of sense reaction in all of the sense fields seems to help children to benefit from school work, if this training does not go so far, of course, as to make the child so sensitive to sounds

and sights and touches and smells and tastes that he cannot live in the ordinary world. Reaction to too low thresholds of stimulation or to too fine differences of stimulation can produce the neurotic who cannot bear a musical note a tiny degree off pitch, or a dish of food which is slightly different in flavor.

Confusions in Direction in Reading and Writing. Some children suffer a longer period of confusion in reading and writing direction than do average children. They confuse "saw" and "was," for example, or they "mirror" letters or words in writing longer than most children do. Some confusion in direction is natural, since it is merely convention which requires us to move from the left to right side of a page instead of, say, from top to bottom, as the Chinese do. Prolonged confusion, however, is likely to mean confusion about general direction, and this is often related to cerebral dominance (see p. 320f). Naturally left-handed children find movement from right to left easier than the conventional direction, since movement from the inside to the outside seems more natural for either hand. Right-handed people swing naturally from left to right in reading and writing. Left-handed people or those who have a tendency to left-handedness seem to "feel" naturally a right to left direction. Such children require much more practice in the fixing of direction of eye movements in reading and of hand movements in writing than do average children. It is important in the early attempts to read and write not to let practice in the wrong direction occur. Teachers should watch children who lean toward left-handedness to see that they practice correct direction from the beginning. They should also watch to see that the left-handed child* places his paper for writing on the northeast, southwest oblique (see Figure 40) so that the left hand can proceed naturally across the page with the hand held below the writing. If the left-handed child places his paper on the northwest-southeast oblique, as do right-handed people, there is nothing left for him to do but write "upside down" the hand placed above the writing and the wrist twisted. Left-handed children can, and should, learn to write as legibly and as rapidly as right-handed children, but they can do so only with proper help. They can also learn to read as well, but only with proper help in establishing direction of eye movements.

Observations of form and the ability to reproduce what is observed in a drawing develops in such orderly manner^{27, 300, 393} that at least one shortcut to the measurement of mental age has been based upon it. The Goodenough scale for judging mental

* Children of five can distinguish the right from the left hand in themselves, but not in other people.^{374, 998}

age from the drawing of a man is based upon the observation that children draw one or two of the most familiar things about them (man, house, etc.) in characteristic form at given stages in the development of form discrimination. Drawings characteristic of first grade children (see Figs. 41-43) show definitely characteristic developments in form discrimination, ability to produce perspective, and utilization of detail.

Perception of Color. Reaction to color is another of the learnings in the process of development of sense perceptions, since it is another of the fundamental qualities of objects. Whether or not tiny babies react to color as such is a matter of dispute.^{180, 201, 944} By two or two-and-one-half years there is clear evidence that children

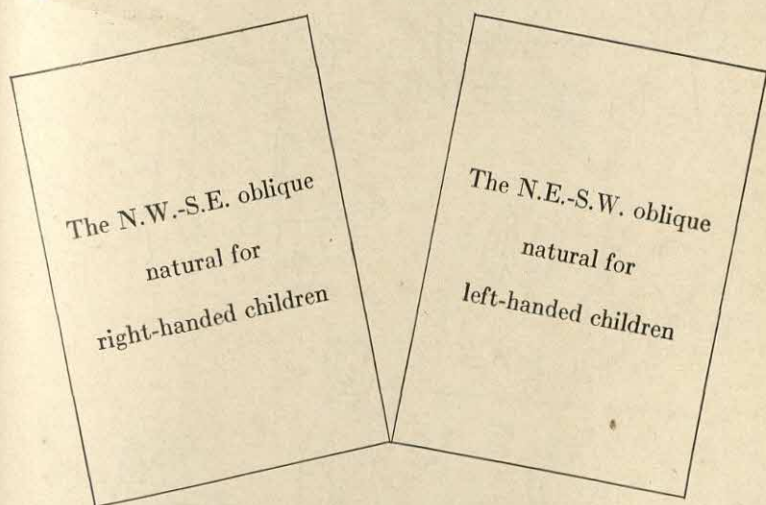


Fig. 40. Positions of paper for right-handed and for left-handed children.

react not only to the fact of color but also to specific colors, since they can sort colored disks with reasonable accuracy and are even beginning to name certain specially favored colors. Whether preschool children prefer red or blue or yellow seems undecided, since available studies differ in their findings. They also differ as to the color named most frequently and with most accuracy by preschool children.^{533, 721} Most of the fundamental and familiar colors are properly named by kindergarten age, or can be learned easily at that time. Boys will have a greater tendency to confuse colors than girls, partly because 8 to 10 per cent of males are red-green color blind, whereas only 2 per cent of females are so afflicted;⁹¹⁴ and partly because our present social tradition expects boys to pay less attention to



Typical First Grade Figures
Selected from Children's Booklets
and Movie Strips —

Fig. 41. Typical first grade figures selected from children's booklets and movie strips. (Hughes & Stockdale; *Childhood Education*, March, 1940.)

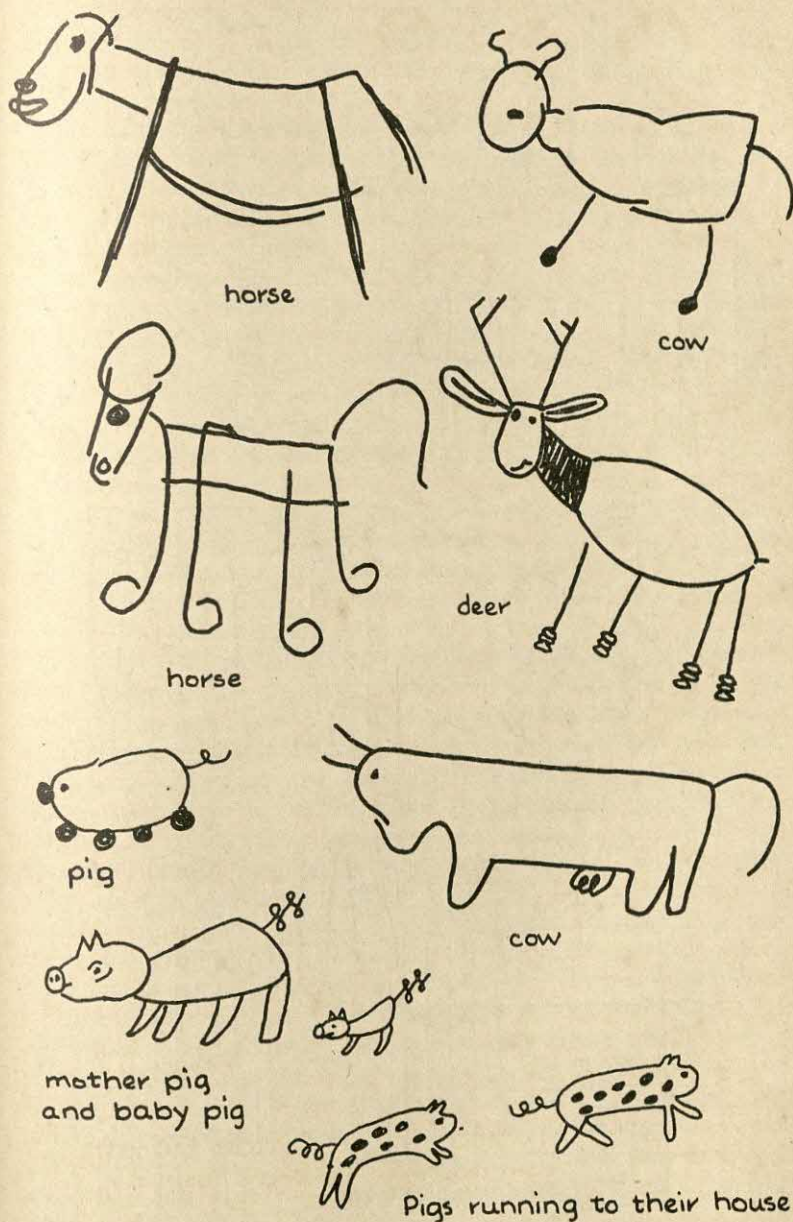
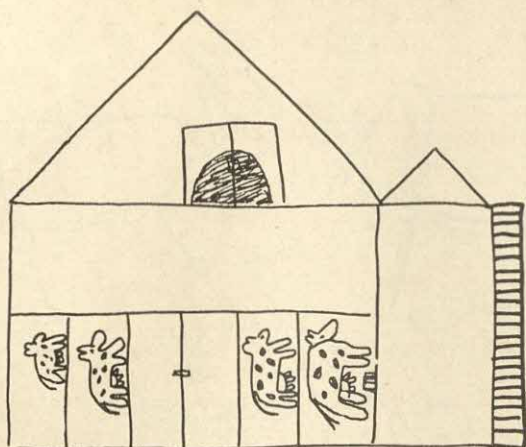
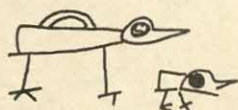
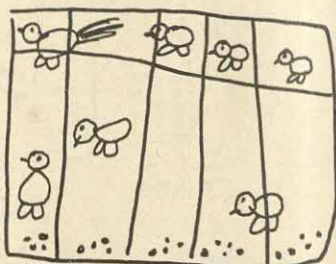
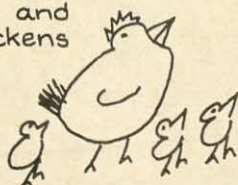


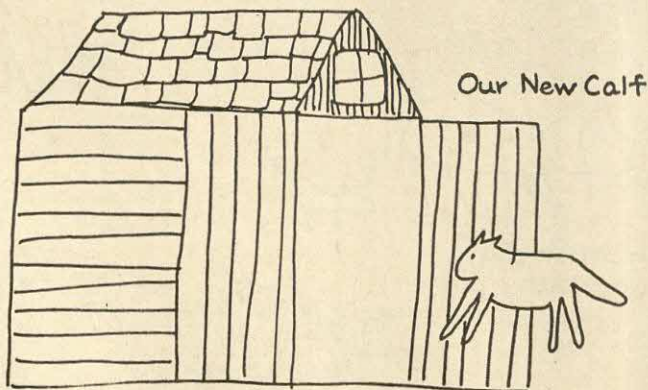
Fig. 42. (Hughes & Stockdale Childhood Education, March, 1940.)



Cows in a Barn

Hen and
Chickens

Chickens in a Pen



Our New Calf

colors than girls do. There are wide individual differences in sensitivity to colors, some children seeming to be captivated by colors early in the preschool years, others remaining comparatively indifferent to them.

The Child's Sensitiveness to Color, as to Other Properties of Objects, Can Be Utilized to Advantage. All sensitiveness to size, shape, color, and the other properties of objects can be developed by good teaching into a source of genuine intellectual curiosity and into a widened aesthetic awareness which will be of value throughout life. Much of this teaching consists of providing the experiences which will lower thresholds of difference, and should be such as to result in emotional satisfactions in such activity. Babies of a few months appreciate toys which are colored, while children of two to three years enjoy clothes which are "pretty," or a room which is colorful. Picture books which are attractive can, from twelve to fifteen months of age, begin an interest in books which serves as an excellent background for learning to read upon school entrance, and for the joy of reading throughout life. Paints and a place to daub with them should be available not only to preschool children but to children throughout childhood. Teachers can do much to heighten the child's sensitivity to color and to teach him wise and creative use of color in his everyday life.

Perceptions of Textures. Judgments of texture also develop largely during the preschool period, although, in this as in all sensory reactions perfection and discrimination can be refined throughout life. Children of one year through three are notorious "handlers." They wish to touch and to explore everything about them, the hunger to perfect manual skills and the eagerness to learn all the properties of objects leading them to examine everything with which they can get into contact. One of the properties they are thus investigating is texture. Hard, soft, rough, smooth, slick, or furry—all "feels" are welcome to the fingers and to the mind to which all these awarenesses are new and fascinating. Most children of two to five years would not only enjoy but would learn much from a scrap bag of textiles, empty spools, and other odds and ends. Clay to model, or bread dough in the kitchen helps children of primary and early elementary age to satisfy the continued urge to handle textures. Children of all ages along with adults enjoy finger painting, in which the child "messes" on paper with the whole hand, thus producing pictures with free flow and often beautiful rhythm. This satisfies not only the urge to feel textures, but also the urge to produce something creative.

Perception of Weight. Judgments of weight are inaccurate for several years because accurate judgment of weight depends upon

accurate judgment of size and a wide variety of experience with materials. Weight, in other words, is dependent upon the size of the object and upon the weight of the material of which the object is made. As adults we have forgotten the painful experiences by which we learned to judge the weight of objects and by which we learned to make the necessary muscular adjustment before picking things up. One reason why children drop things so often is not only that their hands are still clumsy, but that they frequently fail to make the appropriate muscular adjustment necessary in order to hold onto things. As a general rule, small things are light and big ones heavy. Preschool and primary aged children will, therefore, make little muscular preparation when picking up small objects and much adjustment when picking up large objects. However, a small object which is made of a heavy metal or other heavy material, requires the muscular adjustment necessary to lift a heavy object. The child, having failed to appreciate this, drops such objects until he learns which materials (how they look and feel) are the heavy ones per unit of size. Similarly, one sees young children making elaborate muscular adjustments preliminary to picking up a large balloon-like beach ball, only to throw themselves over backward as the ball fails to use up the muscular pull. Thus they learn that some big objects are light and require little muscular pull, and gradually they learn which materials are light as well as which ones are heavy.

Weight judgments depend, then, upon knowledge of the factors which usually make up the weight of objects, namely, size and density of material. They also come, in time, to mean the kinaesthetic "feel" which goes with the handling of objects. The exact amount of muscular tension, and the exact feel in the joints of the body come to be part of the perception (or meaning) of weight. So orderly is the development of this perception in the experience of average children that judgment of weight has been used as a mental test. These tests of weight discrimination are spread over several years of mental age and serve to indicate that judgments of weight are improving in fineness of discrimination throughout childhood. This is also true of all other perceptions and judgments, viz. that the first obvious conquests of knowledge occur in the preschool years, but that an increasing skill in judgment as evidenced by constantly lowering difference thresholds or fineness of discrimination occurs throughout childhood.

Perceptions of Distance. Judgments of distance are even more complex than judgments of weight. The farther away an object is the smaller it looks, the less definite its outlines, the less saturated its color, and the slower its movement. Preschool and primary aged

children, looking down at traffic from a tall building, are enchanted with the toy world which lies below. Until told, they sometimes fail to realize that below them lies a world of full sized automobiles and street cars and people which look diminutive only because they are far away. Through such experiences as this, and through watching cars approach or retreat, they come to learn that, on standard size objects, the smaller an object looks the farther away it is. Through experience they learn the other qualities of the objects by which one can judge their distance away. In traffic the pedestrian must learn these judgments accurately, and usually comes to use loudness of sound of cars as an added index by which to judge their distance. One soon learns to vary these judgments according to circumstances. On foggy days cars which are quite close are blurred in outline and, therefore, seem farther away than they are. This, added to the fact that the driver sees less well than usual, multiplies traffic-pedestrian accidents. Persons who have learned distance judgment in the high clear air of the mountains are in serious danger of traffic misjudgments in the denser and often more smudgy atmosphere of a low altitude industrial city.

As in the judgment of weights, adults have usually forgotten that judgment of distance is not instinctive but is learned. Some radical change of conditions like the above is usually necessary to recall to mind the complexity of learnings upon which our judgment of distance is based. It is small wonder, then, that young children so often misjudge distances badly. One sees them pushing a tray too close to the edge of a table with consequent breakage, jumping from heights too great and getting hurt. It takes a good deal of understanding on the part of the adult not to laugh in amusement, or to be irritated, or puzzled at this type of misjudgment.

Characteristic also of inability to judge distance is inability to judge depth accurately. Recall from Chapter 7 that children are slow to develop binocular vision or single vision with depth perception. Two-year-old children, in the learning process, will lift a leg elaborately to step over the edge of a carpet or linoleum; or they will run a finger wonderingly over a figured material commenting, "It looks rough; it feels smooth." They have not yet learned when a change of line means a change of surface, since in some instances it does and in some it does not. The edge of a step, for example, means both a change of line and a change of surface; a pattern on dress material means a change of line without a change of surface. The change of line at the edge of a rug or linoleum means enough change of surface to trip you up, but not enough to require a lift of leg equal to ascending a step. Only with time and experience can children learn that change of depth or surface can be

judged by the depth of shadow, by the difference in color intensity, or the angle and play of intermediate lines and surfaces.

Perception of Time. Judgments of time, like those of distance, never become really accurate. We are, at any age, limited by our experience with time. Yesterday, a year ago, five, ten or fifty years has meaning to the adult who has lived that long. One hundred years sets us to computing historical dates, as does 1000 years. But a light year in distance, or a million years in geological time are vague concepts indeed. So it is with children. What they have experienced repeatedly becomes meaningful; what they have not yet lived through is meaningless. A new child in the nursery school cannot understand that mother will come "this afternoon" because "this afternoon" has no meaning for him. He can understand, however, that "we will have our orange juice, then we'll play a long time (when waiting for mother it will seem long to him), then we'll have a story, then lunch, then we'll have our nap. Then it will be afternoon and after we've played some more mother will come."

Even for the three and four year old, afternoon is "after lunch." However, more clear-cut events, separated off by more dramatic incidents like going to bed and the change from light to dark and back again, stand out. "Yesterday," "today," "tomorrow," are clear to most four-year-old children.* Four year olds can grasp accurately the meaning of "day before yesterday," "day after tomorrow," "last week," even "next week." Dramatic events like "last Christmas," or Easter, or birthdays stand out, and are appreciated as events. However, how long it will be until Christmas is nebulous to most four year olds unless the time is within a few weeks and the stores give evidence of preparedness. "Summer when we go to the lake," or "Winter when we wear galoshes," or "Spring when the leaves come out" are becoming clear in the late preschool period.

For the nine-, ten-, and eleven-year-old child, time falls into sequences beyond the yesterday and today, or even last week and this week, which tax the comprehension of the four and five year old, and beyond the last summer or this winter which are the limit of understanding of most six and seven year olds. However, as we have said before, understanding of the meaning of time units is limited to what the child has experienced. Reynolds⁸³² tells of a group of eight year olds who were not sure whether George Wash-

* Ames,²⁵ in a systematic compilation of verbal expressions of time used by young children, found words indicating the present first used at twenty-four months, the future at thirty months, and the past at thirty-six months. General divisions of the day (morning, afternoon, evening) were not used correctly until four years; days of the week at five years; months at eight years. Her children were not able to tell time until seven years of age.

ington was mentioned in the Bible, whereas a group of nine year olds had acquired a sufficient working perspective on history to enable them to answer where George Washington belonged.

Time Is a Relative Concept. Confusions still remain, however, in such concepts as "an hour or two," or "we have just ten minutes to get dressed." Some five year olds begin to recognize such units of time as are coincident with the hour or half hour placement of the big hand on the clock. "It is five o'clock" or "It is half past ten" presupposes not only an association between clocks and time of day, but to some extent an ability to read numbers. Most children of four and five, however, who tell time at all do so by more or less accurate guesses made from the position of the hands rather than from reading figures.

Even six or seven year olds have difficulty with, "You may play for twenty minutes." Part of this trouble comes from a general human confusion about time. Filled and happy time flies; unfilled and unhappy time drags. Fifteen minutes of play flashes by; fifteen minutes of sitting to think over a misdemeanor seems to last for hours. This is as true of adults as of children.^{441, 576, 798, 970}

Many so-called behavior problems result from this. The family sit at dinner with engaging guests; time flies for the adults. The young children, with the conversation over their heads, eat, become bored, are forced to lighten the boredom by becoming nuisances. Mother calls for dinner; the eight year old says, "Just a minute." One more game leads to another, and in fifteen minutes he returns home gaily with the firm conviction that he has been only a minute. To his mother whose dinner is waiting and whose husband is fussing over the boy's disobedience, these same fifteen minutes seem thirty and she is thoroughly angry. At moments like this genuine misunderstanding can result. Both boy and mother need to temper their sense of injustice in terms of an understanding of the other's viewpoint, and the boy needs to realize that unless he comes at once when called he is likely to lose track of time with unhappy results all around.

Dawdling, a By-Product of Faulty Time Perception. Dawdling is one of the most acute problems of four to eight year olds. Gesell reminds us that dawdling is found even in two-year-old children and probably represents a normal indifference to social requirements. He says the two-year-old child dawdles "when motivation is low, or at mealtimes when tedious demands are made upon his motor coordination. Dawdling is a form of deliberateness which may have a developmental function without being in any sense a vice or a weakness—a protective kind of negativism or filibustering."³⁷⁴ He adds that five year olds dawdle less with combing

and washing and eating, largely because of the added motor skill which a five year old possesses as an advantage over the two or three year old.

Part of the difficulty with four to eight year olds lies in the fact that at this age adults are tending to throw more and more of the responsibility for dressing, eating, bathing, and care of personal belongings upon the child. This is as it should be, since development of independence and responsibility are of paramount importance. However, the adults must realize that when the child takes over such duties he will not execute them as neatly or as fast as would the adult. His fingers are more awkward, for one thing. And for another, he lacks a sense of the passing of time.

Consider that the newness of dressing oneself has worn off and it is, therefore, no longer fun. Time drags in the unpleasantness of the task. Things can be lightened up a bit if one plays with one's blocks, or looks out the window, or splashes in the water in the bathroom. If the child has a good appetite for breakfast he may hurry in order to get at the next pleasure. If he has slight appetite, then eating becomes only one more chore, so why hurry. Entrance to school helps many children with the morning dawdling because most children like school and do not wish to be late. However, even here, the motive is removed if mother always gives in and finishes the dressing for one so that one gets to school on time anyway. Much of the problem here consists of helping the child to realize that even unpleasant chores can be dealt with best by direct and efficient attack which keeps them from using up too much time. In other words, time, dragged out over dawdling, is gone, and cannot be used for other things. Dressing in competition with an hourglass helps to impress this sense of the passing of time as the sand trickles down. The movement of the hands of a clock also helps, especially if a second hand shows how relentlessly time moves on. Something pleasant happening at the end of the chore tends to lure one through the unpleasant parts, especially if waste of time on the chore obviously cuts out time for the pleasure.

Children Must Learn How to Use Time. Experiences which give a true appreciation of time are invaluable training. Many children have very little of this sense when they enter school. If they do not have it then, school offers an excellent opportunity to teach it. School, being in a genuine sense the child's job, can begin to develop a feeling of what one does with one's job, viz., one works at a job instead of just fooling around. Thus some children learn to become efficient in their use of job time even though they remain dawdlers everywhere else. The reverse is occasionally true, viz.,

that children who have a good sense of using time well, through bad handling develop careless work habits at school.

What we do not wish to have happen, of course, is a sense of crowding by time, a sense of guilt unless one is at all times working at high speed. Some children, overdriven through the dawdling age, develop a too acute sense of the passing of time and become too ambitious, fretting unless all time is used efficiently. "Work while you work and play while you play" does not mean high tension nervousness about either one. Children cannot all be driven at the same gear in speed. Some children show signs of being overdriven at a pace which is too relaxed to get anything but lazy indifference from others. The school teacher's problem is to set a pace which can get efficient work without strain. This inevitably means some adjustments to individual speed of action within any group of children. Parents, dealing with fewer children, can hope to fit the pace better to the child's individual need. Even here, however, it takes a good deal of clear judgment to develop a pace which protects from strain yet which teaches children the value of hard work.

Perceptions of Number. Gesell gives us probably the best analysis of the development of number concepts among young children. He says:

The basis of counting is similarity. We add like objects. Primitive number concepts are from this point of view traceable to beginning language. Concrete evidence of enumeration begins when, for example, a child points to all the cars that he sees, one after the other, saying 'Car? car?' or 'More car?' as though discovering the genus 'car.' Gradually and very soon after two years he uses the plural form to designate more than one, and the notion of one, as opposed to many, is built up. The notion 'two' likewise usually develops in relation to two objects, but 'three' may first have either a collective or an ordinal connotation.³⁷⁴

He points out that a child may be able to match objects with a similar number of objects without having either an ordinal or cardinal number notion.

Gesell found that as early as the preschool years individual differences in number ability appear, some children forming the association between the ordinal or cardinal concepts while other children fail to do so. Ability to repeat the counting sequence, "one, two, three, four," is not to be confused with the ability to actually count objects or to appreciate what numbers mean. Counting objects, "one, two, three, four," with a finger on or pointing to the first, second, third, and fourth object of the series being counted is quite different as a developmental level of performance from merely chat-

tering, "one, two, three, four." However, the child has to have mastery of the recitation of a number sequence before he can combine number recitation with the motor effort of pointing to each separate object as he counts. Gesell³⁷⁴ found that some children can even count four objects accurately, but if asked "How many are there?" or "Give me four" are quite unable to respond. By five years many children can count ten objects and seem to have a clear sense of what "ten-ness" means.

When number sequences are learned well enough to permit easy counting, simple additions and subtractions of objects which can be seen and handled follow easily. Two blocks laid beside two more are easily put together as four blocks. Some children of five years can add sums up to five and seem to appreciate what this means. At this age experience with numbers of low denomination and conversation about them intrigues some children immensely. It is at this age that a genuine love of numbers and hence of arithmetic can be built if the child is not pushed beyond his depth. The abstraction of "How many are two and two?" is beyond some children until they are six or seven years old. Most children, however, upon entering the first grade possess a working knowledge of at least the simplest number combinations in addition and subtraction. Most entering first graders have no knowledge of the multiplication or division combinations.^{162, 1080} Knowledge of addition and subtraction combinations increases rapidly in Grades I to III even without formal instruction.^{162, 1066}

Children of nine to eleven can manage numbers beyond 100 in mechanical addition and multiplication, but they cannot genuinely understand them. Even adults, however, have no real comprehension of numbers above 1000 as a rule. Knowledge of the combinations in multiplication and division increases rapidly from Grades III to V, probably because these combinations are systematically taught in these grades. Knowledge of these combinations continues to increase, though slowly, from Grades V to VIII and beyond.⁸⁶² One of the most important conclusions drawn from summaries of the available literature on development of arithmetic¹⁵⁵ is that children differ widely at any given age or school grade in the maturity of their development in concepts fundamental to arithmetic. Brueckner is so impressed by this that he urges teachers to so organize the teaching of basic number facts that each pupil may study those facts which present difficulty for him. He says: "This may be done through a plan involving pretests, individual drill material, diagnosis when necessary, and varying the amount of practice according to individual needs".¹⁵⁵

Development of Fundamental Arithmetical Concepts. An important part of the work of the early elementary school is to give children the "fundamentals" of arithmetic. The technic of addition, subtraction, multiplication, and division occupy much time. It is very difficult to attempt to teach such processes as "add," "subtract or take away," "multiply or two times," "divide or put into two parts" to children who have not already grasped the idea through handling objects. One reason an abacus served mankind so long was that it permitted him to handle simple number combinations in the concrete. Real facility in the handling of numbers can be achieved, of course, only when a wide variety of number combinations is so well memorized that 7×8 is automatically 56, $7 + 8$ automatically 15, $15 - 7$ is automatically 8, $15 \div 3$ is automatically 5, and so on. This involves rote memorizing of the hundreds of combinations. Methods of teaching arithmetic now current in many progressive schools make full use of handling of objects as a preliminary to the abstraction of handling numbers. They do very well in motivating arithmetic learning. They often, however, neglect the important drill by which a mastery of number combinations is obtained.

In order to be successful in arithmetic in school, children must have not only number concepts, but also facility with number combinations, and a knowledge of arithmetic vocabulary (*percentage, acre, rectangle*, etc.). Even with this equipment, however, we have a great many failures in arithmetic. Part of the difficulty is that children who can solve arithmetic "problems" in actual life situations, cannot solve the too-often-senseless problems characteristic of many traditional arithmetic textbooks. One of the main reasons for mastering arithmetic in school is so that the child may in later life manage his own money adequately, may be able to make accurate measurements, to understand business practices, taxes, and geometric design. We must see that children in school are presented with problems in arithmetic as closely related to real life situations as possible.

From understanding of the meaning of numbers the child moves through the understanding of such concepts as the four fundamental processes of addition, subtraction, multiplication, and division, through percentage and reasoning problems in arithmetic and on, in the later junior high school and in the senior high school, to the stage of development at which algebraic concepts are comprehensible, and the handling of other abstractions is possible. Ultimately the extreme abstractions of calculus can be mastered by the higher levels of intelligence.

SUMMARY

Perceptions Can Be Improved through Training. Children's horizons can be widened by calling their attention to things they have not already observed. A trip through the woods with a person interested in botany calls attention to numberless flowers and plants hitherto unnoticed. A trip through an art museum with a person interested in art focuses attention on numberless aspects of art not previously appreciated. A student of astronomy sees the stars in constellation groupings which escape the attention of another person. Study in any area sharpens one's ability to see, hear, feel, and understand that area. Parent and teacher have an obligation to widen children's areas of perception and awareness.

Teaching can also improve the accuracy of things perceived. Careless observation results in inaccurate reports of situations. Keen and accurate observation of things or of the situations around one, and the ability to make a reliable report of things observed mark the difference between intelligent reaction to the world and continued mediocrity of reaction. Biases and prejudices govern the thinking and reaction of the mediocre observer. Keen and discriminating reaction to the world must be based upon the ability to observe accurately. Children can be taught early in life to observe accurately and to report reliably the world of things around them, at first the simple and obvious things, but, as growth proceeds, more complicated and subtle things and situations. For children who possess a high degree of native intelligence such training in observation can become the basis upon which truly scientific observation and the ability to advance human knowledge develops.*

The success of any child in mastering the subject matter of the school is dependent upon many factors, both within the school and its methods, and within the child himself. Among the most important factors within the child is the factor of intelligence. We have attempted to describe in this section how the child's intelligence is built in the area of his sensations and his perceptions. He can discover many things in his own body and he can develop a genuinely important sector of his intellect through learning control over his body. Whatever else he learns, however, must come to him through the avenues of his eyes, his ears, his touch, and other sense organs. The handicap of the loss of any sense to the development

* Such a magazine as *Highlights for Children: Fun with a Purpose* (edited by Gary and Caroline Myers and published by Highlights for Children, Inc., 37 East Long St., Columbus, Ohio, Vol I., 1946) can give children constructive experience on rainy days or when confined to the house for other reasons. There are many useful games, books, and other constructive devices for widening children's knowledge, a number of which, if carefully chosen, can be found in ten-cent stores.

of intelligence can be seen in the child born blind, or in one who is deaf from birth.

Intelligence, as we ordinarily find it, is built largely through the use of eyes and ears and touch and taste and smell. The infant must learn to control his sense organs well enough to make them useful, as we have seen in the description of how he learns to use his eyes. He must then have a gradually expanding but constantly challenging opportunity for experience from which he can feed his mind. Given these experiences through which he can see and hear, touch, taste, and smell a variety of objects and situations, and given ample opportunity to use his own body he will usually proceed satisfactorily in the growth of his intellect. How much he ordinarily learns before he comes to school and what the nature of these learnings is should be understood by every teacher. Only through such understanding can the teacher fit the child's school experience smoothly into the flow of his growth. Only so can she help the slow learner or grower through the experiences he should have had before he entered school. The child's most important learnings in perception of size, shape, texture, distance, and even of time occur before he enters the realm of formal education at all. Important beginnings in understanding of numbers have also taken place in the preschool years. Children learn much which is typically intellectual quite outside of the schoolroom.

An important emphasis in all studies of sense perception, as it is of all studies in motor control, is the fact of great individual differences among the children of any given age or school grade. Few investigators into any phase of child development fail to make special comment upon the striking nature of these differences, and to plead for a reduction of mass education which loads teachers with so many children that they cannot hope to adapt the curriculum to individuals. They plead also for the initiative and ingenuity on the part of the teacher which will "take each child *where he is* and lead him where he needs to go," regardless of the size of the class.

QUESTIONS FOR CLASS STUDY

I. What would you do to find out if a child who is slow to learn to read:

1. Has defective eyesight?
2. Has cerebral dominance characteristic of the left-handed child and is confused in direction of words and lines?
3. Is immature in form discrimination?
4. Is too bashful to read before others?

What would you do to correct each of these?

II. Visit the children's room of your public library or some school library. What books are available for children of various ages? What has been done to encourage in children an interest in books and reading? What is done to

cultivate a taste in literature which might compete with "funnies" and cheap magazines?

III. Visit some well-run nursery school. What provision did you see for conscious training of sense perceptions? Would you be able to suggest further experiences for the training of perceptions?

IV. How should kindergarden materials and experiences for the training of sense perceptions and judgments differ from those of the nursery school? From those of the upper grades?

V. How would you find out if a child who is slow to get started in arithmetic is lacking in basic number concepts? What experiences could you plan for him to remedy this defect? How would you decide whether defective ability to solve problems in arithmetic in the fourth to the eighth grade was due to:

1. Defective number concepts.
2. Defective arithmetic vocabulary.
3. Defective reading ability.

VI. Look up sense perceptions in the current literature (since 1945). What new findings corroborate or refute the material in this chapter?

VII. Look up further material on special defects as well as gifted children, especially in the literature since 1940. What provisions are now being made for the training of such children? Do these provisions seem reasonably adequate in your state?

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10. DEVELOPMENT OF MEMORY; IMAGINATION; CREATIVE ACTIVITY

MEMORY AS AN ASPECT OF INTELLIGENCE

Just when does memory develop in children? This is not an easy question to answer. In a certain way we must consider sheer conditioned responses in the class of memory, since the response is determined by previous experience which leaves its trace in the nervous system. Very young infants show this sort of memory. Even after a few weeks of life and experience a crying infant will become quiet when his mother approaches his crib even though she has not yet made him comfortable. He "remembers" that her presence eventually means relief from distress. Other evidences of such conditioned memory are to be found in the child who, at a year or fifteen months, snatches the tablecloth and pulls it toward him only to have dishes and liquids tumble over him. This usually frightens him enough so that he leaves tablecloths alone for some time thereafter.

To Train or Not to Train the Baby. One deliberate attempt to make the infant remember on the conditioned response basis is recommended in some child training books as a basis for disciplinary control. Some "training" books³²³ recommend deliberate "lessons": the six- to twelve-months-old child is to be held on the parent's knee before a table upon which is placed a spoon or other enticing object. If the baby does not spontaneously reach for it, the object is to be banged on the table to make it attractive. Then, as the child reaches for the coveted object, the arm is forcibly withdrawn by the adult accompanied by a firm "No." This is to be repeated until the "No" is sufficient to withdraw the child's hand. Occasionally the recommendation in such training programs is to accompany the "No" with a slap on the back of the hand.

Such procedures are considered bad practice by most child psychologists. The child should not be tempted to reach, then punished for doing so, since such procedure can only produce confusion in the child's mind. In teaching a child to remember he should be offered as little confusion as possible; the lesson should be simple

and clear. Plenty of opportunities to teach the meaning of the word "No" will present themselves if the adult will wait for the normal course of the child's activities to produce them. In such a case, the adult's "No" represents only forbidden activity, and is not confused by an adult command to reach for an object which is immediately followed by a counter command not to reach for that same object. Some psychologists of sound standing,^{96, 1044} however, approve the use of slaps on the hand or the building of a conditioned association of "No" with a gentle though firm withdrawal of the child's hand away from a forbidden object. Nearly all psychologists agree that children, even in the first year of life, should begin to learn the meaning of adult imposed restriction on their behavior.

Babies' Memories Are Short. Memory less closely associated with physical comfort or "conditioned" reaction is reported by Bühler¹⁶⁶ who found that five-months-old infants could remember for a few seconds a smiling face or a game played. Bühler found that children of fifteen to seventeen months could remember for eight minutes; children of twenty-one to twenty-four months could remember for seventeen minutes. The work of other investigators⁴⁶⁰ checks with these data closely, for they found in similar experiments that children of nineteen to twenty months remember over a period of fifteen minutes, whereas children of ten to eleven months remember only one minute. It must be understood, of course, that these time intervals refer to specific experimental conditions only. They serve, however, to tell us that babies' memories are very short. Kerley⁵⁷⁹ reports that babies of twenty months of age forget even their own mothers after a week of absence. Because children's memories are, in this sense, so short it is easy to distract their attention from undesirable activities or from something they want but cannot have. Many parents discover this when their children are infants, but fail to appreciate how rapidly memory develops and tend to continue the program of distraction long after it should have been abandoned.

Memory Develops Rapidly. The speed with which children of eighteen months begin to acquire vocabulary (see Chapter 11) is testimony to the speed with which memory of the more abstract kind is developing. With the acquisition of words and the ability to use them we find a way of testing the memory of children which we do not have for children of younger age. This memory is of two kinds: immediate memory and longer time memory. We have many evidences of the child's capacity for immediate memory as measured by reproduction of words or numbers repeated immediately after the examiner or as evidenced by the duplication of

actions like tapping cubes or marking squares in patterns set by the examiner. Stutsman⁹⁷² found that children of eighteen months can repeat single words after the examiner, that children of twenty-four months can repeat five single-syllable words like "Give me the big box." Gesell³⁷⁴ found children of two years able to repeat a sentence of three to four syllables; children of two and one-half years, six to seven syllables; children of four years, twelve to thirteen syllables (one trial of three); of six and one-half years, sixteen to eighteen syllables. At eleven years children can repeat a sentence of twenty syllables almost without error.⁹⁹³ The Terman-Merrill Revision of the Simon-Binet Test of Intelligence gives a normal immediate memory span for two digits at two and one-half years, of three at three years, of four at four and one-half years, of five at seven years and of six at ten years.

A number of reports^{104, 286, 399} on the earliest memories of older children and adults have been made, showing that occasional correct memories dating from one and one-half to two years have been reported by adolescent children. The average age of first memory for adolescent children seems, however, to be around three and one-half to four years. Unpleasant memories predominate, probably because they are more vivid.* These, we must recall, are conscious memories, viz., those which are available to the conscious mind for recall. Psychoanalysis^{349, 485} gives us clear evidence of the deep-lying effect upon adult behavior which is traceable to memories of early childhood or even of infant experiences which have become buried in the unconscious mind.

The Early Elementary School Child's Memory Tempts Us to Poor Teaching. When one reviews the standard of immediate memory for two-year-old (two digits) and for three- and four-year old children (three or four digits) against that of the seven- to ten-year-old child (five or six digits), and these in turn against the standard for average adults (six or seven digits) one gets some idea of how rapidly immediate memory develops between the ages of two and ten years. Ability to repeat by rote memory is, in fact, so

* The law of effect in learning has long taught that learnings accompanied by pleasant feelings are remembered longer than learnings accompanied by unpleasant feelings. Vivid memories, however, remain longer whether pleasant or unpleasant, than other memories.

Meltzer, H.,⁶⁹⁶ in a 1930 review of studies on relationships of feelings to memory found that data then available were unreliable as to whether pleasant or unpleasant memories were more durable.

Gilbert, G. M.³⁸² in a 1938 review of literature found that since 1930 technics of investigation had been improved. Data then available indicate that pleasant material is, in general, more efficiently retained than unpleasant, though this is less true of children than of adults. Even more important than pleasantness in determining length of recall, however, is vividness.

well developed by school entrance that many systems of education yield to the temptation to exact large quantities of repetition of rote materials, laboring, apparently, under the delusion that what can be repeated is of necessity understood. This is one of the greatest fallacies of so-called education. Almost any child of normal intelligence can be coached to repeat numberless nursery rhymes at two or three years of age. Almost any six- or eight-year-old child can be coached to repeat long and complicated extracts from classical literature or from religious catechisms without more than the vaguest idea of the meaning involved.

It is true, however, that, although not at first understood, such materials, well laid in during early childhood, often become part of a foundation which comes to the surface easily when needed later in life, when it will be better understood. In other words, basic precepts, laid in early and well, can serve when needed throughout life. There is defense for this viewpoint in the evidences available that a native language, learned early, may lie in disuse throughout an ensuing lifetime, only to make its appearance when senile decay has erased all later memory acquisitions. The danger of such rote learning comes when children are coached under the wrong conditions or when lapses in the perfection of learning produce punishment for failures which the child cannot overcome without too great strain. Under such conditions the child comes to hate rather than to love the material thus forced upon him, and comes to resent the school or institution which thus demonstrates its lack of human understanding.

Material which is understood by the child can be memorized with far less effort and with far better emotional feeling. Knowing this, our progressive churches and schools have made every effort to help children through stories, dramatization and other interest-rousing and meaning-clarification devices. Reading preparation in kindergartens is helped by placing printed placards directly on the object (e. g., "T A B L E" placed on the table) thus shortening the process of association between printed symbol and the object itself. Learning the multiplication tables and other fundamental number combinations is done through playing games which use the combinations over and over in fun situations. Learning of the classical poems or speeches or extracts from literature is done through dramatization of the ideas, through class analyses of the meanings, and similar expedients.

We have in current teaching perhaps made learning too easy. Children can learn multiplication tables, spelling lists, classical quotations by sheer rote memory and without any appreciable nervous strain. In fact, they often appreciate the satisfaction of

doing an uphill job of using their memories or their reasoning capacities. Even though we must never abandon the greater ease and understanding which accompany progressive methods of teaching, neither should we entirely lose sight of the fact that memory as such is one of the capacities of intellect which is growing rapidly during the preschool and early school years. It should not be allowed to atrophy from disuse.

Studies of the Effect of Exercise upon Memory. Gates³⁶⁹ studied the effect of practice upon immediate memory including memory span for digits in children from four to six years of age. He found that the children who practiced were somewhat superior at the end of the practice period, but that the advantage was temporary, and the control group caught up in a relatively short time when the children were older. Other studies^{463, 526} corroborate this result when the tests used were throwing at a moving target, color naming, and strength of grip, which are performances testing quite different capacities.

We must remember that these experiments deal only with two groups, one of which receives earlier training than the other, but both of which receive training. They do not reveal what would happen if two groups were set up, one of which received indefinite training, the other continuously deprived of training. It is likely that the practiced group in such a situation would gain an advantage which the deprived group could never overtake. It is not likely that such experiments will be set up, since no one cares to chance what may happen to a group of children deprived of important training for a long period. However, we have some evidence from Sherman's⁸⁸³ studies, from the Iowa Intelligence Controversy,* and other studies cited elsewhere in this book, that training of memory and intellect, of bodily control, and of social skills does produce effective changes in behavior and is, therefore, eminently worth doing. The warning which Child Development seems to give repeatedly is that if, in giving such training, our society makes the mistake of offering meaningless material, or of forcing training upon an organism not yet ready for it, the effort is futile or even destructive.

Aids to Memory in School Work. In school the practice of recitations during part of each class hour helps children to review the material read, and hence to remember it better. Studies have proved that review and testing of materials studied helps to fix the memory of the materials, particularly when the reviews and tests are spaced judiciously. Spelling, the fundamental processes in arithmetic, and word recognition in reading call for permanent

* See Bibliography.^{906, 961, 1046}

retention of material which is not in itself meaningful. History and social science, however, call for retention of a different type of material. When, as in spelling, fundamentals of arithmetic, and word recognition, material cannot be made meaningful, permanent and accurate retention can best be assured by a degree of what is called "overlearning," or learning by drill beyond the point where the material can just be recalled accurately.

Are Children's Memories Better than Adult Memories?

Most of the comparisons between the memories of children and adults are comparisons based upon the memorizing of such rote or meaningless material as digit series or nonsense syllables. In this ability children improve rapidly during the early primary period and between ten and twelve years compare favorably with average adults. Memory for meaningful material, however, is a different thing. Here adults have a distinct advantage over children because adults have a wider background of experience against which to make the associations which aid memory. Strang suggests that "perhaps children have acquired their reputation for good memories because they frequently memorize material as 'the easiest way out.' Memorizing a history lesson requires less effort than studying it imaginatively, grasping the main ideas and telling them in one's own words".⁹⁶⁰ She adds that overemphasis upon verbal memory in the primary school years may mean underemphasis in true thought-getting. Thorndike's¹⁰⁰² experiments confirm the belief that, as meaningful material increases in difficulty, adults have greater memory capacity than children do.

IMITATION AND IMAGINATION

Imitation in Learning. Much learning of younger children in language and action, and of older children in social practices and attitudes, is due to imitation. Just where the line in learning is to be drawn between imitation, which is a reproduction of other people's behavior, and imagination, which is creative rearrangement of experience in one's own mind, is not a matter of concern to us here since we shall discuss them both without too much differentiation.

Many aspects of body postures and habits; tones of voice, diction and vocabulary; emotional reactions and mental attitudes are imitations of those the child sees about him. Luckily, he copies the good as readily as the bad unless the bad is made more interesting and dramatic than the good. In most families, neighborhoods, and schools, the number of things offered to children as learning patterns which are good and should be copied far outweigh those which are bad and should be avoided. Sometimes it seems hard to con-

vince parents and teachers of this, largely because they take the desirable learnings for granted and tend to see and remember only those pieces of behavior which cause trouble.

Whom Do Children Imitate? What models children choose to imitate deserves consideration. In general they imitate (1) the models they are exposed to first, and most continuously. These are the parents. Teachers, to whom children of school age are exposed one-fourth of their waking time between six and eighteen years of age, are also important models. Each teacher, however, is present in the child's life only one year, or, in high school, five hours a week for one or two years. Parents remain the same from year to year. Thus any given teacher is likely to have less permanent influence than the parents. This is fortunate when the teacher's model is bad, unfortunate if good, especially if the general influence of the parents is bad. It is important that both parents and teachers should set a good example. However, they should not attempt to do this in such detail that their own behavior becomes strained and artificial.

Children also imitate (2) models whom they like. Occasionally a well-loved teacher leaves an impression on a child for life even though he or she is with the child only a year. Children of four years up in age imitate other children because they like other children and find them more (3) interesting or (4) more exciting than adults. Any model which is dramatic or exciting attracts attention and is likely to mold children's behavior in some degree. This is one reason they take up slang, which is colorful, or profanity, which is explosive, or "dirty stories," which carry an "exciting" atmosphere. Children also often imitate (5) some older person or child because such a person represents being grown-up which is in itself interesting. Parents, again, have an "inside track" in this type of imitation because a two- to ten-year-old boy's idea of grown-upness is ordinarily his father, and the little girl's idea is her mother.

Adults do not always handle the subject of imitation of behavior with intelligence. It is not wise to single out the neighborhood or the schoolroom bad boy and girl for constant harangue or punishment. It calls too much attention to them. Such a boy or girl should be dealt with as inconspicuously as possible in order to avoid calling the attention of the other children to his or her behavior as a possible model for imitation. Making such a child conspicuous may also suggest to some otherwise bored child a way of stirring up excitement for himself. It may, too, rouse the sympathy and support of children who may jump to his or her defense because they think of such a child as "being picked on."

Another frequent adult mistake is to hold up models for praise to the group. Few children react to such preaching favorably, even though the calling of the group's attention to the praised child would seem, in the light of the above paragraph, to be a good way of getting imitation. The trouble seems to be that children singled out for praise are likely to become intoxicated with it and to become obnoxious to the other children. Then, too, in spite of the fact that modern schools have eliminated, as a rule, the old feud between teacher and pupil, a child who is considered "teacher's pet" is very seldom popular. It is unfair to any child to attach that stigma to him by holding him up as a model to the rest of the group. More than this, the usual implication of "Look at John; why can't you be more like him?" is that there is something the matter with you. This does not tend to rouse favorable emotional tones. Hatred of the model and a determination to avoid anything associated with him is far more likely to result than is a supine reflection of the model's behavior. In fact, any child who reacts positively to a model so held before him is probably only courting adult approval while hiding an inner resentment.

Children should be able to earn praise from adults for behavior which grows out of inner conviction and not merely because they are grovelling to please or to hear themselves held up before other children as models of perfection. Natural praise and blame are essential to good teaching, if we make sure that it is not constant personal praise which singles out any child too often, or constant personal blame which stirs resentment and a sense of being picked on. Every child has something he can and should be praised for. Blame should be quiet and firm, holding the child to the best standard of which *he* is capable, not a standard of which some other child is capable.

What Is Imagination? Constructive imagination seems best defined as *that quality of thinking which uses facts to solve present or future problems*; or, perhaps, as that capacity which interprets facts in such a way as to improve present and future living. Destructive imagination may solve present or future problems in a manner which proves bad either for the individual or for society; or which carries the individual away from the world of facts into a world of wishful fantasy, thus interfering with efficient living. This includes crime, socially destructive invention, lies, and destructive day-dreams or psychotic separation of the psychic life from the real world.

How Much Imagination Is Desirable? We hear a good deal in recent years about the dangers of imagination. There are many warnings against retreats into the world of fantasy, about escapes

from reality, and about the neuroticism which thus results. So much has been said, in fact, that we have on the one hand many parents and teachers who feel guilty if any child in their care loses his immediate grasp on concrete reality for even a moment. From quite different sources, however, we hear a great deal of criticism of the older traditional discipline and education because it stifles imagination, kills initiative, and chokes creativity. We have, then, on the other hand parents and teachers who seize upon every evidence of fanciful play or conversation as a promising step in fruitful creation, exaggerating the fancy of the child, insisting, for example, upon the reality of Santa Claus long after the child is too mature intellectually to swallow such play as real fact.

How much should children's imaginations be cultivated; how much repressed in favor of an acceptance of cold facts? Good progressive educators seem to have solved the dilemma fairly happily. They recognize imagination as the foundation of all progress; yet they realize that any activity of the imagination which interferes with the orderly and efficient meeting of routine living or with the carrying of ideas into fruitful, productive action is ordinarily to be discouraged. Imagination which leads to constructive action is good; that which interferes with or substitutes for necessary action is bad. The action, to be sure, may be only the telling of an entertaining story to others, or the writing of a play, however pointless, or the creation of an invention, however useless. Pointless plays and useless inventions may be socially futile; but psychologically, they represent a healthier use of imagination than a sheer retreat or fantasy would.

In progressive education we find much use of children's imagination and much encouragement of individuality in style and variety of writing, story-telling, craft production, and other forms of activity. However, even though the more imaginative traditional Mother Goose and fairy tales become part of nearly every child's knowledge of literature (he could never make the Quiz Kids or Information Please without them), the major emphasis today is upon the "here and now" type of story or dramatization. These "here and now" stories deal with the fireman or policeman or similar activity chosen from the near environment for younger children, and with other topics chosen from the wider environment for older children. They are factual, and current in the child's experience, and provide him with a wealth of information.

In addition to this, good progressive education builds up scientific information through practical laboratory experiences which the child can see and create himself. This serves as a background of fact against which children can check "what they think is" against

"what is." Thus, with increasing knowledge, fantastic or impossible ideas tend to fade in favor of creatively possible ideas. Not only is a background of facts built up as a groundwork for "realistic thinking" in this way, but the child is also given continuous practice in checking ideas against facts, a habit which marks the difference between a "wishful thinker" or impractical visionary and the practical thinker or creative producer.

Education Should Develop Constructive and Discourage Destructive Imagination. The problem of education becomes, then, the problem of helping children to learn to use their imaginations constructively rather than destructively. This involves acquainting children with as wide a set of scientifically accurate facts as possible. It means training children in the habit of using facts rather than wishes as a basis for thinking. It means training the courageous honesty and foresight which makes lying foolish and shortsighted. It means understanding and guiding children's lives so that they can find the kind of emotional satisfactions in their own real worlds which will keep them living in reality, rather than permitting their real worlds to become so starved or unpleasant that they are forced into the world of fantasy for normal satisfaction. All this involves fine programs (1) in schoolroom teaching of subject matter, (2) in daily schoolroom experiences which make the subject matter live and function in the practical, real lives of the children, and (3) the soundest possible understanding of the needs and experiences of each individual child so that his school, and his out-of-school living, prove emotionally satisfying to him. Teachers and parents should understand signs of wrong uses of imagination and should be trained to turn wrong uses and wrong satisfactions into right uses and right satisfactions.

Studies Showing the Amount Children Use Their Imaginations. Make-believe and other imaginative activities occupy a considerable part of the mental life of nearly all children from three or four to ten or twelve years of age. The easiest device we have for knowing this is observation of children's play and of their speech. A little later than the preschool years some light can be thrown on the content of children's imagination by studies of their dreams and of their expressed wishes. Markey,⁶⁷² in a study of the imaginative behavior of very young children, found them participating in imaginative situations at the age of two and one-half years on an average of six and one-half imaginative situations per two and one-half hours. At three and one-half years the number of imaginative situations rose to twenty-six in the same period of time. This is a sharp increase, and marks the beginning of the age at which imaginative play comes to occupy an important part of

the child's life. The preschool child shows his imagination in such situations as using a row of blocks for a train, pretending that he is eating sand pies, playing with dolls as if they were real babies, and so on.

Burnham,¹⁶⁹ in a study of young children's language, found a similar jump in use of imagination at around three and one-half to four years of age. At two years to two and one-half years of age children's remarks contained 1.5 per cent of imaginative remarks; at three and one-half to four years the percentage rose to 8.7, some instances being quoted in which the proportion of imaginative remarks was as high as 26 per cent before four years of age.

Imaginary Companions. Imaginary companions live in the imagination of many preschool children. Children deprived of satisfying companionship with other children of their own age group are likely to substitute for this a child or children who live in the imagination. Even in nursery schools, however, where children have a group of children their own age to play with, imaginary companions are common, several studies showing as high as one-third of such children having imaginary companions. In competition with other children, however, envy of a playmate's baby brother may create in the imaginary companion a baby brother who is lacking, or a parent possessing the envied characteristic of some other child's parent. Boys as well as girls have imaginary companions; extrovertive, popular children have them, as do keenly intelligent children. They are often extremely vivid, so that a child may cry in distress because someone sits in a chair occupied at the moment by the imaginary companion, thus squashing him.

Some people suggest dealing with imaginary companions by "playing up" to them, inviting them to dinner in order to get a stubborn child to eat his own dinner, or laughingly laying the blame for a child's forgetfulness or carelessness upon the imaginary companion. This is bad, since it makes the companion too real. We must remember in dealing with imaginary companions that children often have difficulty in differentiating between real things and imagined things. Adults should not add to this confusion by treating imagined things as if they were real. Children, too, often discover, quite without help, the trick of laying blame on the imaginary companion or of using the companion as an excuse. This habit of "projection"* of blame or negligence upon someone or something else should not be encouraged.

On the other hand, it is not wise to treat these companions as a ridiculous fancy or to punish children for them, since this only drives the companions under cover where they are likely to do

* "Projection" is one of the least desirable of the escape mechanisms.

real damage. They should always be kept in the open. Only so can we know how important to the child they are, and how much of the child's time and attention they occupy.

Imaginary Illness. Another trait of imagination which should not be encouraged is imaginary illness. Some children have discovered that complaint of pain, or refusal to eat causes real anxiety to the parent, or gets sympathy and excuse from work from the teacher. Such an exciting way to get attention, or such an easy escape from an unpleasant task is a great temptation. Adults must be watchful, lest children learn the habit of "cashing in on weakness," since, like projection, this is a destructive practice. Children who tend to do this should be quietly but firmly faced with what they are doing and helped to undertake the disagreeable task instead of running away from it; or to learn better ways of bidding for adult attention. Adults must, however, be very sure of what they are doing here, since to ignore a child who is really in pain, or to drive a child to work when he is really ill, especially to imply that he is a liar when he is not, gives rise to a deep sense of outrage and injustice. Any child who is in pain or ill should not be ignored. The only safe rule for the adult is that if there is any doubt whatever about any given situation the child should be taken at his word. A further suggestion is, that when illness occurs, it should not be made any more dramatic or satisfying than is necessary to keep the sick child comfortable and reasonably happy.

Imagination During School Age. Entrance into school is the period of peak in imaginative play. As Strang puts it: "There seems to be a period, somewhere between five and seven years, while the actual world is no longer new and strange to them and before they become matter-of-fact, when fairy tales add new delights to living for the imaginative child."⁹⁶⁰ As children enter the primary school period they can begin to control imagination for useful purposes such as story-telling and painting on the one hand, or sympathy and understanding on the other. Although some three- and four-year-old children can carry the thread of a creative story well enough to interest other children, this capacity is not usual until children reach school age. Children are four or five years old as a rule before they draw or paint from a previously held idea. Planning projects, "carrying out ideas in your head," then executing these plans becomes possible at school age.

Sympathy, as based upon the capacity to imagine how other people feel in given situations, develops from four years on through the elementary school years. Genuine understanding of how other people feel, excepting for the most imaginative people, is based upon some personal experience in the given situation. Sympathy for

a wide range of situations is not, therefore, usual until adulthood, where the individual has accumulated a wide range of experiences.

Children of nine to twelve believe in luck, magic, and superstitions—ideas which continue throughout life unless the children are given facts with which to correct these impressions. For example, earlier in their lives they have probably believed in Santa Claus, the Easter bunny, and fairies. As they mature, however, they have been able to replace these ideas with the facts, in many cases preserving the desirable aspects of the former belief in the idea of Santa as the spirit of Christmas and giving, of Easter as a deeply significant reawakening, of fairies as the spirit of adventure and making hard things come true. It is at the elementary school age that facts ordinarily come to replace the more childlike phases of the imagination, and that satisfactions with the gang prove more genuine than satisfactions from daydreams. Belief in luck, magic, and superstitions should give way to facts as the child approaches pubescence.

Daydreams. Daydreams are part of normal development in children. During the elementary school years children are likely to daydream of adventure and conquest through physical feats; in adolescence they are likely to wander about mentally in wealth and luxury or in romantic conquest. These daydreams sometimes become so complicated that they require genuine concentration of attention to follow, in which case the passive fantasy either turns into a form of business-like, uphill thinking, or is abandoned because it bogs down of its own weight.

Sherman⁸⁸⁶ says that every child daydreams to some extent. Abnormality is to be recognized when the phantasies become persistent and symbolic of deeper or hidden wishes and conflicts. It is then that we know the child has escaped into the world of unreality where the events and occurrences of the real world play only an incidental and unimportant role in behavior. Sherman calls to our attention the fact that the milder forms of systematic phantasy probably serve as a desirable outlet for repressed conflicts which, denied any expression at all, might become dangerous. However, a decrease in the quality of a child's schoolwork, lagging concentration, wandering attention, particularly in children whose behavior has not had this quality, should be regarded as possible symptoms of a deeper psychological trouble.

As in every other form of imagination, there is a constructive and a destructive use of daydreams. Most of us have to dream of conquest before we make the necessary effort to make a conquest real. We must dream of ourselves as more poised, more learned, or more successful before we make the effort to learn social poise, to

study, or to improve our jobs. Adolescent daydreams, which picture the young person to himself as a better, finer, more successful person than he is, are often the motive force which leads to the necessary action. Daydreams of the sort which lead to such action are good. However, many daydreams are of the sort that lead to discontent with the world we must face when the dream is over. These are often stimulated by highly romantic movies or novels which picture a path of roses or a degree of luxury impossible for most mortals. Hours spent with such movies and novels are good if they give rest and a momentary fulfillment of ordinary longings for romance and luxury, leaving one rested and willing again to take up the routine of life as it is. They are bad if they deepen discontent, or if they prove so attractive that the individual gives up the struggle to adjust to life as he must meet it, and retreats into the world of phantasy.

We can see tendencies in either direction in young children. The five- or six-year-old child who prefers his imaginary companion to readily available real companions is probably revealing the fact that he cannot "take it" with real children. His imaginary companion is manageable, does as he is told, offers no resistance to the child's domination. Real companions are not so manageable. However, for the average, normally extrovertive or out-going child, real companions are more fun, because they have more ideas. Living with an imaginary companion is satisfying to a child through more than a year or so of time only if he is either a keenly imaginative child who can keep himself endlessly amused with his own ideas, or a deeply frustrated child who cannot find normal happiness in the company of other children. No child who prefers an imaginary companion to a real one can be changed in his preference by scolding or punishment. He can be changed only by being shown how he can gain increasing satisfactions from real children, and this takes a great deal of understanding and patience on the part of the adult as well as some cooperation from the other children who are available.

The Tendency to Exaggerate Facts. Children who exaggerate do so to make an impression. All children do it sometimes, the periods when it is most usual being in the gang stage when there is a great need to appear equal to the gang in strength and possessions, and in the adolescent period when the need takes a slightly different though often even more intense form. Boasting about possessions and accomplishments, either real or imagined, should not be taken too seriously by adults unless it becomes a habit which carries the child too far astray. It is bad when the child indulges in it in the face of taunts and check-ups from his peers, showing that he fails

to realize that he is not "getting away with it." It is bad, too, when the boasts about things that are not so become so habitual that the child loses track of what an accurate statement really is. It is bad when it becomes an evidence that the child is failing to impress his peers with real accomplishments and is, therefore, filling the gap with words in place of deeds.

Again, as above, the best weapon to use in correction is not punishment but, rather, help to develop in the child a wholesome pride in his accuracy. Sometimes it helps to make him realize that increasing ostracism from the group is due to his tall stories without deeds to back them up, and that a better way is to do the deeds and let some one else tell about them if they rate being told about. Children who are physically handicapped are among those who may find it too hard, or even impossible, to gain normal attention and affection from children of their own age and for whom, therefore, the temptation is great to resort to daydreaming or to false boasts. These children need a special program to teach them how to make life interesting for themselves and for others through the development of other traits than those involved in vigorous physical play.

Imaginative Play Often a Key to Inner Feelings. Leads into children's emotional problems can often be found in studies of their imaginative play, or their casual conversation, or their dreams. Desires and needs which have been forbidden natural outlet often come out in play or talk or dreams where the child feels free of the censor which forbids the more natural outlet. Most expression of such suppressed or repressed needs is unconscious, the child being quite unaware of what he is revealing. Only trained specialists should attempt to read deeper meanings into children's play or dreams, but much insight into the less deeply hidden emotional needs can be gained from observations of play or translations of dreams.*

Children's Lies: a Frequent Problem in Growth of Imagination. Children's lies offer a sufficient problem to the average teacher and parent to be given some discussion here. All children lie sometimes, since a number of types of lies are simply the product of usual developmental patterns. The natural boasting mentioned above belongs in this classification, and occurs in the natural development of bids for attention from one's peers at the gang age or at adolescence. The confusions between fact and fancy which are characteristic of three- to six-year-old children are another type of so-called lie which is the by-product of a stage of development.

* See discussion of projective technic, Chapter 3. See also Bibliography. #48, 501, 528, 590

Many of the preschool child's compromises with the truth are due to his genuine inability to discriminate between what happened and what he imagined as happening. Children of preschool and early school age see many things taking place around them which seem due to magic or fairies. They see someone push a button near a door and flood a room with light. They see hard green apples go into an oven and come out soft and brown. Without the knowledge of the magic in electricity or the effect of heat, these things seem no less marvelous to a four year old than that a fairy should grant any childish wish he may think up. Experience with real things and a widening knowledge of science help the child to discriminate with increasing accuracy between fact and fancy.

Some children lie playfully, watching to see the effect "of the whopper" upon the audience. The fact that other children of equal or of less factual experience sometimes believe these yarns leads children to take a chance on what adult reaction will be. This is especially true in the gang age, and again in adolescence. Not infrequently the adult reaction is (and should be) a laugh rather than a scolding. It is probably wise for the adult to add "You don't expect me to believe *that*, do you?", or some other indication that the yarn is understood as a yarn. Occasionally children begin telling a story based upon truth, only to find themselves captivated by possibilities for embroidering the original fabric. In time they learn the difference between telling a story to amuse people (as they themselves are amused by talking animals, etc.) and reporting a factual situation.

The exaggerations of truth which characterize some adolescents have their roots in the deeper personality needs of the young person. Whenever a young person feels inadequate as a member of his peer-group—whenever, in other words, he feels he does not have within himself what it takes to carve a niche for himself—he is likely to resort to spinning yarns about his possessions, his ancestry, about what *he* might do if he only wished to try. The greater his feeling of inadequacy the louder his boasting becomes. Some adolescents do this so often and over so long a period that they appear to be inveterate liars. When this behavior persists it is a signal that the young person needs to be helped to achieve status, to find security or attract attention by more constructive means. Sometimes the need is to curb appetite for the wrong kind of excitement by learning where and how to find the right kind.

Some children's lies are lies of loyalty to protect a friend in trouble, or to appear noble in assuming blame and punishment to protect another child. This is particularly likely to happen during the gang age. In the long run we wish to develop such loyalty, but

children need help to differentiate when such protection is wise or noble and when another person needs the lesson of being faced with his faults or mistakes.

Somewhat more serious than these are the lies of fear. Many children lie to avoid punishment or to escape the consequences of what they have done. These lies may be rooted in either of two causes: (1) punishments which are too severe for an average child to bear without attempting to escape; (2) the given child may be too much of a coward to face an ordinary punishment. In the former instance the severity of punishment should be lessened and a more understanding attitude adopted toward the child. In the latter case the child must learn that the consequences of the lie are worse than the original punishment, and thus that facing the truth in the first place pays. In every other possible way such children should be helped to develop the courage to face everyday life situations. In the occasional case in which the child's total nervous constitution makes him retreat from ordinarily difficult situations, the demand of the situation may have to be lightened enough to locate the point at which the child can face the situation without retreat, and the severity gradually increased as he proves able to take the load. Otherwise he may be broken into exaggerated symptoms of nervousness and withdrawal, or he may be driven into more and more clever evasions.

Some lies are those which attempt to cover up work not done or to gain a reward, and show a wide resourcefulness of imagination in their inventiveness. If the work is too hard for the child's ability, or if an overemphasis is put upon stars on the blackboard or honor listings, children cannot help being tempted to gain what is expected of them but what they cannot win honestly. Cheating is often produced in this way. Public rewards should be varied enough to give children of all types of ability a chance at the publicity. If, however, a child's lie is an evasion of a reasonable job or an attempt to gain a reward which he could gain with reasonable work, then the problem becomes one of helping him to understand that such behavior is less satisfactory in the long run than the effort of doing the necessary work would have been.

Some children lie because the adult puts them into a corner and through overpowering suggestion compels them to say what is expected regardless of whether it is so or not. Some children cannot bear to "let" their parents or teacher "down," and even though they can easily take a punishment, they cannot bear to disappoint people. Occasionally an unwise adult by third degree methods extracts a confession which later proves to have been false. There are few ways of damaging children's psychological lives more severely

than this. When in doubt, it is better to let a child get away with a lie than to make him confess falsely.

Probably the worst forms of lies are the lies to gain selfish ends, and the lies to get revenge or to tear down someone else. Children who try out a lie or so in order to get what they want usually learn from one or two experiences that it does not pay. If, however, any child sticks persistently to lying for selfish purposes or to get back at other people, he reveals a fundamental defect which should receive the attention of a specialist in children's behavior. If no specialist is available, the parent or teacher must make every effort to analyze why this child must get what he wants at no matter what cost. (1) Is he spoiled and in need of a gradual development of pride in doing work, adjusting to the needs and desires of others, learning "to take it"? If he is spoiled he must be handled firmly though gently since a too brutal hardening process will either break him or send him into a corner with his back against the world, there to develop still more clever devices for getting his own way. (2) If he is so starved for love, or for status that he must lie to gain that for which every child hungers, then every effort must be made to give him what he needs in security and status by honest means within his command. In every case of dishonesty in children, the development of pride in honor is a better way to proceed than to attempt to govern the child by fear of the consequences of dishonor alone.

Genuine understanding of the difference between fact and fancy, between what is and what one wishes to be, between taking an advantage now as against curbing oneself in favor of the future—all this requires a well-developed and well-disciplined imagination. A sense of honor, self-control, and a vision into the future should remain a clear objective for parents and teachers in the guidance of children's developing imaginations.

MUSIC AND RHYTHM: IMPORTANT CREATIVE ACTIVITIES OF CHILDREN

An important aspect of imagination is creative production. The development of children's ability to draw, to mold clay, and the like, has been discussed under motor development, use of hands. Creative writing will be discussed under language development. Music, one of the most clearly creative capacities, remains to be discussed here.

Studies in the field of music, especially on the early levels of development, are fairly numerous. In general they follow the findings of other developmental studies, namely, (1) that certain maturations are necessary as foundations to training, (2) that there are

marked individual differences in ability to be found in children at all ages and in all school grades, (3) that improvement depends in an important way upon the method of teaching used.

How Much Talent Is Necessary for Musical Development?

There are in the literature one or two implications that musical development is in a high degree dependent upon native capacity and that individual differences in capacity are more marked than they are in the more intellectual fields of learning. Seashore,⁸⁶⁷ one of the best known investigators of musical talent, says: "Musical performance, like all other acts of skill involving unusually high capacity, is limited by certain inherent and inherited motor capacities." Other capacities basic to musical ability such as a sense of pitch, a sense of time, and of intensity he feels are largely inborn and function from early childhood: "after a comparatively early age they do not vary with intelligence, with training, or with age except in so far as the exhibition of these capacities is limited by the child's inability to understand or apply himself."

In contrast to this, we see that in a study of the effect of coaching upon ability to sing tones and intervals in children thirty-one to forty-eight months of age Jersild and Bienstock⁵²⁷ found a considerable gain in ability to sing tones and intervals in the coached group. This advantage over the control group lasted at least over a summer after the experiment was completed. Their conclusion in regard to preventing "monotones" (children who sing in an extremely limited range of tones) seems significant. The results of the experiment in the case of individual children suggest "that training might have quite a profound effect in helping the child to overcome the habit of using only a small part of his potential tonal range and in forestalling habits that might become fixed and lead the child to become resigned to being a 'monotone.'"

A study⁹⁰ of 407 children, ages two to ten, and of sixty-five adults revealed the average number of tones in the voice range of children and adults as follows:

<i>Age, Years</i>	<i>No. Tones in Range</i>	<i>Age, Years</i>	<i>No. Tones in Range</i>
2	5	7	14
3	7	8	15
4	9	9	16
5	10	10	16
6	13	Adults	20

Thus we see a rapid development in the number of tones in voice ranges. This study also revealed a wide individual difference in tonal range; one child of four years could sing twenty-two tones, a range greater than that of the average adult. Children in this study could

not always use the complete range of tones in their vocal repertory effectively in songs, but the range of tones available to young children is considerably wider than has usually been supposed. Bienstock, the author of this study, concludes:

The findings suggest that it would be profitable to emphasize vocal training in the lower school grades. Such training might lead the child to capitalize upon his ability and to acquire skill in the use of his voice. Moreover, emphasis on training at this early age might help to prevent the formation of habits of disuse, which might make it difficult for the child to realize his potential skill in later years.⁹⁰

She found a slight indication that girls have a wider range of tones than boys, but the difference was not statistically significant and the findings were not conclusive on this point. The tones which appeared in every range from two years through adulthood were D, E, F, G, A above middle C. By three years middle C was included. At six years the range was A, B, C (middle C), D, E, F, G, A, B, C, D, E, F, G, which was increased by ten years of age only by the addition of G and F below the lower A of the above range.

Updegraff and associates¹⁰²¹ at Iowa, found in a study of music in young children that in the singing of tones, intervals, and three- to five-note phrases, three- to five-year-old children made consistent gains under a program of training. In the singing of phrases there seemed a normal developmental gain in the control group as well as in the trained group, but training increased these gains noticeably. They also found that interest, satisfaction, and enjoyment increased as ability increased, training seeming to give the children more self-confidence, more interest in learning, and more enjoyment in participating in group musical activities. Preschool training in music seemed to carry over into school music activities, and the interest gained earlier seemed to persist into the school age.

Jersild⁵²⁴ found that children improve in training in proportion to initial musical ability. This is true of sight reading and of playing of standard musical instruments, the children who have natural gift being able to benefit from music lessons earlier than are children of less ability. Nearly all studies have shown large individual differences in musical reactivity.* Although Mursell⁷²⁷ feels that there is little evidence that these differences in ability to respond to training are any more marked in music than in any other field of education or training, one of the best recent studies⁸⁵⁹ of inheritance of musical talent states unequivocally that great musical achievement is dependent upon some unusual hereditary endowment.

* See Bibliography.^{90, 449, 471, 524}

Evidence from research, then, leaves us to conclude that exceptional talent in music is clearly dependent upon hereditary endowment, although the greatest talent cannot develop without opportunity and training. Conversely, no amount of training will make even an average musician of a child entirely devoid of talent. On the other hand, much can be done to cultivate average capacities, to teach appreciation and emotionally satisfying performance to the great mass of children, the final degree of appreciation and performance achieved being clearly correlated with degree of initial talent. It is possible, of course, that the newer methods of free teaching and encouragement of each child to attempt creation on his own and according to his own feeling may produce not only the capacities already demonstrated, but may even produce a type of creative capacity as yet undreamed of.

Tests of Musical Capacity. We have a few tests in the field of music such as the Seashore⁸⁶⁸ records for the measurement of pitch, tone, and interval discrimination, and the Kwalwasser-Dykema and Kwalwasser-Ruch tests.⁶⁰⁴ These, however, test sensory reaction to music more than they test ability to appreciate or to perform. Kwalwasser⁶⁰³ in a study of the ability of over 4000 elementary and secondary school children to reach the standards set in a course of study adopted in 1921 by the Music Supervisors National Conference,⁷²⁸ found that these standards were beyond the reach of the children in the particular school system he measured. It seems evident that further study is required if our school music programs are to be based upon a knowledge of the developmental level of music in the elementary and secondary school years.

The popularity of school bands has led to a few studies which have attempted to determine the level at which instrumental music should be taught in the schools. Studies of motor skill with fingers have led us (as in other applications of the fundamental to accessory theory) to emphasize percussion bands in the primary grades. Colby,²¹⁶ whose work in music with elementary children is outstanding, tried training preschool children in the use of a tin fife, the tonal range of which is exceedingly simple. She found the children making a little progress in the first few lessons, but unable to move beyond the simplest steps in the playing of this instrument. Not only did the lack of control of fingers seem an impediment but the span of melodic perception and the ear-hand coordination required to perform on such an instrument were not yet developed. Although the piano offers a clearer picture of definite key to be pressed for each note in the score and is probably because of this somewhat easier for children than the flute, the double reeds, or

brasses,⁷⁹⁹ there is considerable dispute about the age at which piano should be taught. Many experienced music teachers feel that unless the child has exceptional talent in music, piano lessons are not particularly profitable before ten or twelve years of age, when the necessary eye-hand or ear-hand coordinations, muscle development of fingers, and melodic perception have been developed.

Bodily Rhythm. In rhythmic responses to music we must again recognize the fundamental to accessory principle of development. Bodily rhythmic reaction begins with simple, whole-body movement. Children jig the whole body in response to certain types of markedly rhythmic music before they are a year old. This motion does not usually follow exactly the beat of the music, but is a general bodily response, perhaps to the excitement of the music. Throughout the nursery school years, children love body movement to marked rhythms, but only a few children in most groups are able to initiate accurate stamping or walking to the beat. Once the pattern is set, many other children can follow, though the smoothness of movement is frequently broken.

Since training in dancing and bodily rhythmic responses to music is dependent upon the development of necessary muscle growth and motor coordinations, most children become discouraged if faced with more complicated patterns of bodily control than they can master with reasonable ease. As in instrumental music, however, certain gifted children show a precocious ability to master complicated rhythm patterns and seem to benefit from early training in complicated dance forms. If these children are going to enter the professional dance field, training in acrobatic and ballet dancing should probably begin in the preschool years.

Some awkward children of elementary school age become more graceful and coordinated when given training in dancing. This training must be well done, however, if the child's sense of inferiority in motor movement is not to be exaggerated by contrast to other especially gifted children who may be in the classes, or by an unfortunate psychological approach by the teacher.

Training in rhythm and dancing is an important part of most elementary, secondary, and college physical education programs for girls. At these ages motor skills are sufficiently developed to make fairly universal training profitable. The awkward girls as a rule, if the teaching is well done, become less awkward. The average girl becomes freer and more coordinated in movement. The gifted girl may become a beautiful performer. Rhythmic expression for boys is becoming less taboo than it was. Many boys, wishing to sharpen a sense of rhythm for school orchestra performances, find dancing classes helpful. They know that painting, poetry, and other

creative activities which are dependent upon a free-flowing rhythm are benefited by creative dancing. It is not at all unusual now to see boys in creative dancing classes in high school and college. In elementary schools boys enjoy folk dancing and gain much in motor control and rhythm because of this type of training.

Training of Creative Capacities Important to General Growth and Adjustment. The importance of training in the expression of emotions and of individuality through creative activity is receiving much attention in the mental hygiene field. Constructive use of leisure time in a world in which working hours are being shortened and in which commercial recreation of a passive type is on the increase becomes of greater and greater importance. "The devil finds work for idle hands to do" is a maxim which leads to an emphasis upon both physical play programs and upon the development of love of music, art, reading, crafts, gardening, and other constructive leisure time activities. These programs have in mind not only the prevention of delinquency, but also the enrichment of living. An important way to heal sick minds is to give hands and intellects something creative to do and to enjoy. Human happiness and purposefulness in living are greatly enriched because of interests and skills which occupy time richly rather than leaving it empty or filled only with cheap movies or noneducational radio programs.

Programs in school which train hands and eyes and ears in arts and crafts and music and dancing are considered helpful not only as creators of good leisure time activities, but also as mental health devices, and as means of training children in concentration and satisfaction in work.*

QUESTIONS FOR CLASS STUDY

- I. Discuss the pros and cons of requiring rote memorizing:
 1. In the primary grades.
 2. In high school.
- II. Visit a Church School. Are its methods conducive to the development of genuine insight into the principles being taught? Is any provision made for helping the children to live the principles taught?
- III. How would you decide whether a poor speller:
 1. Was defective in general memory?
 2. Was more auditory than visual in his type of imagery and therefore less able than average children to remember how words look?
 3. Was unfamiliar with English at home, hence lacking in basic understanding of, and familiarity with the words he is trying to spell?What could you do about each of these?
- IV From the discussion on types of models imitated by children can you

* A number of excellent school programs along this line are described in W. Carson Ryan's *Mental Health through Education* (Commonwealth Fund, 1938).

make any suggestions for improving the models you saw in action in the last school room (or Sunday School) you visited?

V. Visit a schoolroom or draw on your memory of one and list the things you saw which:

1. Encourage destructive imagination in the children.
2. Encourage constructive imagination in the children.

VI. How can a teacher use children's creative imagination in order to help them learn rote materials like history dates, number combinations, spelling rules?

VII. In view of your understanding of why children lie, how can you educate children to the value of truth?

VIII. What would you do with a child who gets sick just before the arithmetic period every day? With an adolescent who faints when sent to the Principal's office? With a chronic daydreamer? With an adolescent who romances over movie stars to the neglect of school lessons?

IX. From the discussion on musical ability, combined with what you have learned of motor (general bodily and vocal) skills, sketch a program which would teach music and rhythm:

1. In the primary grades.
2. In the intermediate grades.
3. In high school.

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11. GROWTH OF LANGUAGE, THINKING AND REASONING

DEVELOPMENT OF LANGUAGE

In man language becomes one of the most important implements of intelligence. Some behavioristic psychologists have, in fact, said that all truly human thinking takes place by means of language. This is probably not true, but it indicates something of the importance of language as an expression of and as a means to reasoning. Language is also a primary means of social intercourse, being used not only to relieve people's own feelings or to air their own views, but also to awaken a response in other people and to influence their attitudes and behavior.^{261, 653} Animals have certain means of communication, just as human beings do, through tones of voice and through gestures. But in man verbal expression offers the possibility of transmitting fine shades of meaning and steps of logic which are almost impossible of transmission otherwise. Two studies^{990, 1017} have shown how closely language development parallels intellectual development, one revealing the great language retardation among the feeble-minded, the other showing great acceleration of language ability among gifted children.

One of the most important tasks of schools is to train children in the facile understanding and use of their native language. To read quickly and with understanding, to speak colorfully and fluently, to write intelligently are goals clearly set as educational objectives in nearly all schools. We cannot truly understand the culture and the thinking of any country until we understand its language. The same thing is true of the culture and thinking of one's own country. Therefore an understanding of the steps of development in language skills becomes necessary to good teaching. However, when the child enters school, and therefore before he has had any formal teaching from the school, he has made long strides in the development of language. This is in many respects a demonstration of an educational achievement of the first magnitude.

Language an Abstraction of Objects or Situations. We have seen something of how the baby learns about the properties

of objects around him, how he learns to react intelligently to the situations which surround him. He does this more and more effectively in the realm of concrete objects and of concrete situations progressively throughout his life. After a few months of such learning in the beginning of his life, however, he begins the next step in "intellectualization," namely, he begins to associate voice sounds with various objects and situations. Learning to attach meaning to sound takes many forms. Even the very young infant learns to single out and to appreciate his mother's voice from all the other sounds which come to his ears. He learns to associate all the comfort of his mother's care with this sound so that in genuine emergencies her voice and her arms can bring comfort when all else fails. He learns quickly, too, to understand the meaning of crossness in her voice. Babies of a few months react with fear or with hurt feelings to scolding tones in the voice. By slow steps and constant practice they begin to single out from all the tones and words spoken a few words which have definite meaning. The baby of a year is fairly good at reacting to tones of voice, and can react specifically to a dozen or so special words. From this point understanding of language progresses rapidly; the separate words, and later phrases and sentences, are substituted for or symbolize the objects or actions which they represent.

One of the cute tricks of a nine-months-old baby is to wriggle with anticipation when his cap is put on his head because he knows this means going out. By twelve to eighteen months most children have managed to say the "bye-bye" which indicates going bye-bye, and the word "go" or "out" enters the vocabulary of most children at this time. The tiny infant has no way of indicating that he is thirsty but to cry, with the result that the anxious adult may try out a number of possibilities before arriving at the drink which relieves the child. The acquisition of the ability to say "nuken" or "wawa," if understood by the adult, at once indicates the child's need, but only to the select circle of adults who understand this jargon. Only when the child can say "water" or "drink" can he get results from the public at large.

Most children have acquired an effective working vocabulary to meet immediate life needs by the age of three; and, by the age of five, they have acquired a vocabulary which expresses quite varied shades of meaning and makes oral exchange of fairly complicated thoughts possible. The next stage of abstraction lies ahead, namely the recognition of a set of marks on a page which represent the words he has previously learned to speak. His first abstraction of the object or situation is to use a spoken word to represent it; now he learns a set of marks on a page as representation of the spoken

word. Thus he learns to read. Later he may learn a shorthand symbol as a further representation or abstraction of the written or printed word, or a mathematical or chemical formula as a representation of a very complex situation.

How the Baby Learns the Beginnings of Language. There are two processes involved when a child learns language. (1) He must master the control of breath, larynx, and tongue necessary to speak. (2) He must make the associations between meaning and object or situation which were discussed under sense perceptions and sense judgments. Language is good only to express meanings. If there are no meanings to express, the child develops no spoken language. We shall see later that restricted general experience is at the root of the difficulty which some children have in mastering spoken language as a preliminary to the mastery of reading and composition.

Control of the Mechanisms of Speech. In the first few days of life the infant must learn that air drawn backward over the voice box during crying causes choking. Air must be sent out over the voice box. Even at a month one can read something in the character of the cry—pain, rage, or just plain exercise. From two months on, experimentation with the vocal mechanism is almost as constant as the movements of arms and legs and head by which the child, during his waking hours, is learning control over his body in general. By four months most infants have fairly well mastered the principles basic to effective use of the vocal mechanism. They blow bubbles, coo, chuckle, gurgle, laugh, constantly experimenting with the use of tongue, larynx, and breath control. This constant use of sounds is called the babble stage of language learning. Through it the infant learns the modifications in tension of vocal cords, tongue, and lips necessary to the formation of each of the sounds. He has command of most of the vowel and a few consonant sounds at four months. By six or seven months he has controlled most of the vowel and consonant sounds and many of the diphthongs and syllables necessary to speech. By eight months he has mastered the foundation sounds from which he can develop the basic language (such as English or French), which he later speaks as his native language.^{94, 408} By nine months the babble softens into the rhythm of the speech the child hears around him. Actual words, used discriminately, begin to develop at eleven or twelve months when the child's active vocabulary is usually "mama," "dada," and one or two other words.

Development of Vocabulary. *Active vocabulary*, or words which the child can use, develops rapidly from eighteen months on. Smith's⁹¹³ studies of vocabulary increases have been quoted widely,

her study having been one of the most carefully done. She gives the vocabularies of children as follows:

<i>Age (in months)</i>	<i>Number of Words</i>	<i>Gain</i>
8	0	
10	1	1
12 (1 year)	3	2
15	19	16
18 (1½ years)	22	3
21	118	96
24 (2 years)	272	154
36 (3 years)	896	624
48 (4 years)	1,540	644
60 (5 years)	2,072	532
72 (6 years)	2,562	490

The slowness of the development between fifteen and eighteen months is usually explained by the fact that most children are concentrating on the mastery of upright walking at this age⁸⁹⁰ and do not seem to have psychological or physical energy available for increases in language ability. Gesell³⁷⁴ did not find quite such rapid increases in acquisition of active vocabulary as those reported in the above table. His average at eighteen months was between ten and eleven words. He points out, also, that all children learn words which they seem to forget from time to time. In spite of this, however, from both Gesell's and Smith's studies we see a gain of 500 to 600 words yearly between ages two and six. There are marked individual differences in size of vocabulary at every age.⁶⁵³ Gesell comments upon the wide individual differences in vocabulary apparent as early as eighteen months. In his group of forty children at this age he found a range from four words for one child, to "too many words to enumerate" as reported by the mothers of three others. Shirley⁸⁹⁰ reports the range at two years as from 6 to 126 words. There are also wide individual differences in clearness of enunciation throughout the preschool years, some children speaking clearly even at two years of age, others still speaking so imperfectly as to be very hard to understand at school entrance. Language is essentially a matter of imitation of models. It is important to give children clear models from the beginning by speaking clearly to them rather than yielding to the temptation to talk their own imperfect baby talk back to them.

Increase in vocabulary still continues rapidly after school entrance. Cuff²⁴⁰ gives us figures for grades three through eight as follows; these are words understood—the test did not sample words actively used as did Smith's study with younger children:

Grade	No. Words in Vocabulary	Gain
3	7,425	
4	10,395	2,970
5	12,460	2,065
6	13,965	1,505
7	14,910	945
8	16,800	1,890

Other studies^{126, 584} do not show quite such rapid gains, since they credit high school seniors (approximately eighteen years old) with 15,000 to 18,000 words. This in turn exceeds Terman's⁹⁹³ estimates as based upon samplings of vocabulary. It also exceeds the general estimates of the average population vocabularies as measured by army tests of intelligence in the World War of 1914-1918. We can see, however, that with proper teaching, vocabulary continues to increase throughout the school years. In contrast with the 1914-18 figures we can see in Cuff's and other more recent figures an effect of better teaching since the first World War.

Passive vocabulary, or what one understands even though one cannot command the words for active use, always *exceeds active vocabulary* at every stage of development.⁶⁵³ Even at sixteen weeks an infant will turn his head to the sound of a human voice, and seems to "recognize" his mother or nurse, perhaps smiling delightedly at her approach. By six or seven months he is familiar with a mass of situations and objects, the names of which he begins to recognize. By a year he has a fairly extensive passive vocabulary, which from that time forward continues to develop even more rapidly than his active vocabulary. Many adults, reading magazines and newspapers or listening to the radio, go on expanding passive vocabulary long after their active vocabularies have become static. Listening to the radio is a considerably better aid to increasing of active vocabulary than is reading alone, since it extends the recognition of words beyond seeing and into hearing. One more step is necessary, namely speaking. Words which we recognize the meaning of when read may often spring up to our tongues to be used, but we avoid them because we are not sure of the pronunciation. Radio helps this. The final aid, however, is to speak the word until it no longer feels strange on the tongue; only so can it become part of an active vocabulary. Reading of good literature aloud, with a dictionary at hand to check upon pronunciation is probably the best way to go on expanding active vocabulary throughout life.

Growth of Language Facility. Words alone do not make speech. It is the type of words used and the groupings of words into sentences which determine true facility. When language responses

first put in their appearance the child uses single words to express himself, those words often being repeated several times. As he grows older, more and more words are joined together until ultimately the sentence, first in a structurally incomplete but functionally complete form, puts in its appearance, to be followed by sentences which are both functionally and structurally complete. Smith⁹¹³ and McCarthy⁶⁵⁴ have both obtained similar figures for the length of response in relation to age. According to Smith the child at two years uses 1.7 words on the average to the sentence and at five years 4.6 words per sentence. McCarthy found at the age of eighteen months a mean length of response of 1.2 words, which rises by gradual increments to 4.6 words per response at the age of four years and six months.

Type of Sentence Structure. At the age of eighteen months simple sentences, consisting of a noun and a verb, have put in their appearance, these being followed somewhat later by simple sentences with a single phrase, then by more complex sentences and compound sentences.* Up to the age of four and a half years, complex and compound sentences constitute only a small proportion of the total number of sentences. Nevertheless it is worthy of note that virtually every form of sentence structure has put in its appearance by the age of five or six years. In the earlier years there are many declarative sentences (which are more frequent than any other at all ages) and many imperative sentences.

The preschool trend toward longer and increasingly complex sentences continues into the school years and on into maturity.³⁰ However, this development slows markedly after the child has mastered enough complexity to serve his commonest needs. Hoppes'^{480, 481, 482} studies of elementary school composition show that in theme writing the simple sentence is the type most frequently used by children in Grades IV to VI, although there is a small, but consistent growth from grade to grade in complex sentences and in compound-complex sentences.† He concludes that help in the use of complex sentences should be given in all grades, and that children below the sixth grade should also be given help in the use of simple sentences. He furnishes, too, a list of suggestions by which elementary school teachers can be helped to estimate progress in language expression:

* Gesell³⁷⁴ (p. 195) says: Compound and complex sentences, and even sentences with brief subordinate phrases, are rare until along toward three years, but are occasionally heard at two years."

† Other studies^{457, 957} corroborate Hoppes' work in showing the peak of use of simple sentences at ages eight to ten (Grades IV and V) with decreasing use of this form of sentence in favor of increasing use of compound, of complex and of compound-complex sentence from ages ten to fourteen (Grades V to IX) and throughout the high school period.

(a) increasing length of sentence, (b) decreasing ratio of simple to complex and compound sentences from grades III to VIII, (c) marked decrease in run-on sentences beyond the fourth grade, (d) decrease in unpleasant repetition of words, (e) decline in number of sentences beginning with the pronoun I, and several other suggestions.

Symonds and Daringer⁹⁸² in a careful study of sentence structure found that in the fourth grade there are an average of about two errors in every sentence in children's writings, and that this ratio decreases gradually until about the eighth or ninth grade, when only about one error per sentence is made. The teacher should, therefore, watch for progress in the reduction of the number of errors per sentence. However, Davis²⁴⁹ points out the desirability of watching children's progress in terms of correct usages in language, rather than in terms of errors. In her study she found that the number of correct usages increased, and the number of incorrect usages decreased with advancing age, both in absolute numbers and in proportion to the total number of words used. She also found that, as is to be expected, children from upper socio-economic groups, having better language examples at home, make fewer errors than children from lower socio-economic groups. It is encouraging to note, however, that children from the lower socio-economic groups made the greatest improvement in the elimination of errors in the early school years.

Quality of Compositions. The quality of children's compositions improves very slowly from grade to grade.⁵³⁶ Brueckner¹⁵⁶ points out why this should be so.

The growth of the ability to write well-organized compositions and letters is a highly complicated process. In the first place, there is involved the gradual development of the oral and written vocabulary. When these are inadequate, the pupil finds difficulty in expressing his ideas, often because of lack of basic experience—he may have no thoughts to express about the topic under consideration. In the second place, there is involved a complex developing physical process (namely, handwriting) that interferes seriously with the expression of ideas in the case of young children. In the third place, there are numerous formalities in style, usage, and grammar that must be borne in mind in expressing ideas. Finally, the pupil must master numerous rules for capitalization and punctuation, which in themselves constitute a real burden.

These mechanics impede fluent expression. However, there is evidence⁸⁰⁸ that training in the mechanics of expression does not necessarily insure good results with the nonmechanical aspects of composition. We have too few studies as yet upon which to base a judgment as to just what point in development of the mechanics

of writing (penmanship, spelling, handwriting, and so on) the mechanical aspects of writing drop into the background and thus make it possible for writing to become a tool for the expression of ideas. One experiment in teaching⁸⁷⁷ encouraged young children to dictate stories, poems, or other compositions. Relieved of the necessity of struggling through mechanics, the children "produced charming and meaningful compositions." Many progressive teachers now use this method of encouraging composition. This is an excellent device for helping children to organize and express thoughts on various topics. It should not be used exclusively, however, if children are ever to develop the capacity to write letters or other types of written work. Children need training in the mechanics; teachers need to know how to make the satisfaction of doing one's own writing overbalance the drudgery involved. Studies on the effect of typewriting skill⁴²² upon the fluency of written composition indicate that typing reduces the physical strain of writing compositions, and facilitates expression, even in the lower grades.

Studies of what use is made of written composition^{56, 57, 316} show that letter-writing is the writing activity most used by children in the junior and senior high schools, next in order the writing of stories and poems, the keeping of diaries, and the listing of items, the combined total of the last three uses being about equal to the letter-writing in frequency. Filling out of forms, keeping of minutes, and taking of notes on what is read outside of school are activities confined to only a few children in the junior and senior high schools.

Oral Composition. According to Brueckner,¹⁵⁶ there are few studies available which can give reliable measures of the improvement of the quality of oral composition. These deal with analyses of error rather than with the growth of the quality or richness of oral expression. Several studies of the frequency of use of oral speech as distinguished from written composition* testify to the far greater use of oral language over written language at every level of development. These studies also show, however, that written composition occupies far more of the language teaching time in nearly all schools than is given to oral composition and expression. The implication is clearly in the direction of a recommendation for greater emphasis upon oral composition.

As in the *studies* of development of all aspects of growth, studies of oral and written composition *reveal tremendous differences of level or development at every chronological age and every academic grade.* It is a common thing to find in a single class a range in these abilities of as much as six grades or six years of development. It is not

* See Bibliography.^{45, 56, 57, 212, 536, 866}

unusual to find college students whose language ability ranges as low as the standard for sixth grade. Such a wide range of language ability offers a serious problem to every teacher of English. Some means must be found for estimating the language ability of each student in each of the major branches of language learning. Some technic of teaching must be developed which can insure progress for each student at his own level.

Specific Uses of Language. Probably the first use of language from the earliest vocalizations is to make known feelings,⁶⁵³ wants, or needs, and to secure information. "Go bye-bye," "Mine," "Bobby wants a drink," and the persistent "What's that?" "Why?" of the question-asking stage of the three- and four-year old child are examples. One investigator¹²⁶ found that in a single day his three-year-old child asked 376 questions, and that his four-year-old child asked 397. This is probably somewhat high for average children, but gives an idea of why this age is referred to as the question stage. Even at three years language serves the purpose of simple narration, the incidents talked about usually being telescoped into a single simple sentence: "We went downtown," being used to cover all the exciting situations involved. Occasional children of three can enlarge upon this, and some children of four can tell enough of an incident to hold the attention of other children for short periods. Imaginative elements often creep in, possibly as a reflection of the stories being read to children at that age: "Once there was a big engine. It came right up to the door and asked for breakfast."

The most complicated and advanced use of language is to express reasoning: "If I don't wear my mittens I won't get them dirty," or "Where does my dinner go when I eat it?" As the child's experience enlarges, and as his mastery of vocabulary increases, the form of reasoning he can do becomes increasingly complex. He is usually in the fourth or fifth grade before he can, for example, extract the meaning from even fairly simple reasoning problems in arithmetic if they are presented in written form. Somewhat earlier than this he can demonstrate fairly complex reasoning in practical or concrete arithmetical situations if he does not have to struggle with language. Training in the verbalization of reasoning goes on throughout high school and college, and even the keenest adult often struggles to find the particular word or phrase which will express the exact shade of meaning he is trying either to capture for himself or to convey to some one else.

Content of Language. In content of language we find a pre-dominance of egocentricity in the language of young children.⁷⁸⁹ The predominance of the pronouns "I," "me," "mine," so charac-

teristic of the preschool child, continues in the writings and conversation of children of school age. The six year old's insistent, "Look at me. See me," is familiar to every parent and teacher. However, in proportion to the total number of words used in free conversation there is likely to be a decrease in the proportion of "I's" used throughout elementary school years.⁷⁶¹ In the situation of the written composition, Hoppes⁴⁸⁰ found in one series of papers of third graders that the subject of the initial sentences of more than 55 per cent of the compositions was "I," but that this was the case in only 25 per cent of the compositions written by sixth graders.

Speech as a Thermometer of Emotions. Speech is "the thermometer of emotional reactions."⁷⁰ A number of investigations* have shown that in the content of speech of very young children talk is dominantly about things which have emotional content for them. The first word or words of the vocabulary is often an interjection or are nouns uttered with an interjectional inflection. Emotionally toned utterances are frequent and are attempts to command, request, threaten, or express desire. This type of response in language decreases as the child gains in socialization and in facility of expression.

Not only what is said by children, but the tone of voice, is important as an indicator of feeling. Children, having not yet learned to conceal their feelings from the world, burst out spontaneously with what they feel. However, there is one stage of language development during which the child's words cannot be taken literally as indicating meaning. For example, many three- or four-year-old children swear with bombastic emphasis, not because they are that angry, but because they have copied a tone of voice from the person from whom they learned the profanity. The tone was exciting and dramatic; it captured the child's attention; he duplicates it, gets an exciting response as a rule from adults, and continues. If he gets no particular excitement out of his own use of the phrases he usually soon forgets them in favor of language which nets more effective social results. However, sometimes a child finds that such bombastic expression is fun because of the way it feels in his own mouth, or because it really does release emotional tension. In this case he may persevere in such expressions, and may require some discipline before he learns to control the feelings thus expressed.

Four to eight year olds characteristically "go tough," largely as an expression of a developing ego.† In dealing with other children,

* Summarized by McCarthy⁶⁵³

† Aggressiveness in asserting oneself and in dealing with others will be discussed as a desirable phase of personality development in Chapter 13.

any early primary school child must use fairly obvious means to make his point. In addition to this, bombastic phrases "feel good" not only in the mouth, but as an inflation of one's own sense of security and importance. Therefore, such remarks as: "I'll kill you dead!", "I'll chop your head off!", "You dumbbell!" and occasionally phrases, even less elegant, which include gutter language referring to sex or elimination are common at this age. These, of course, have been heard; children do not invent such language. If adults stage a complete war on such language, children are likely only to be challenged to increases in toughness as proof, mainly to themselves, that they can hold their own. "Dirty" language is, of course, undesirable at any stage. Probably the best way to deal with this is to give the child the proper anatomical and physiological words for sex and elimination with the understanding that if he wishes to refer to bodily functions he'd better speak correctly. This usually robs this area of language of its punch.

To try to make "a little gentleman" of a child at this age under all circumstances is likely to prove a severe handicap to the child in his gang contacts if the adult is successful; or it may turn out to be a challenge to further toughness if the adult is not successful. Boys, particularly, seem in the average gang to need means of proving themselves unafraid. A few "You dumbbells" or even worse, hurled with good effect may prove useful in gang adjustments. The lesson for children should probably be to learn to differentiate where you use such language and with whom. You do not, for example, call your parents or your grandmother, "dumbbell" or "fool."

Even the best homes, however, feel some competition with outside contacts, and find themselves fighting "it ain't" and "he done" and "you dumbbell." Even in good homes a mother may find herself fighting the pattern of grammatical slips set up by the father who does not wish to appear effete among his business associates. Or she may try to eliminate a reaction to the father's quite unconscious profanity. The adult should be careful not to nag the child about inaccuracies in language so constantly that he becomes resentful or discouraged in his attempts to seek information and to share his experiences with his family. It is probably better to overlook some bad grammar than to develop a morose and uncommunicative child. Profanity, on the whole, seems easier to deal with. It is quite possible to develop in the child an ability to understand that even though father or a truck driver may so express himself little children may not.

Code Language Popular with Children. Another aspect of language fascinates eight- to ten-year-old children. They love codes and secret languages. "Double talk" characterizes this age as it

does also adolescence where it serves to cement the sense of group solidarity. Any code for letters in which to write secret messages, or any pass word which serves to mark off a separate social group or gang is seized upon avidly. Adults should respect this secrecy, since most of it is innocent. The carefully guarded secret password of one group of nine year olds proved upon investigation by worried adults to be "sodium bicarbonate," and of another "Espazoza." Use of codes proves excellent mental exercise, and, as in the Boy Scout signal code, a fine means of training children to alertness.

Importance of Language Models. The problem of teaching good grammar and diction in schools is one often discussed. Most teachers feel that they "haven't a chance" in competition with home and playground. The whole picture of the development of language shows clearly that it is an imitative performance. The model most frequently heard and most admired will, naturally, dominate the pattern. If a teacher is sufficiently admired she or he may become a consciously copied pattern, effective at least during the period of closest contact with the child. Any practice in the right direction is, of course, desirable. But even the best teacher sees young children only twenty-five hours each week for thirty-six weeks out of the year; and the high school student's contact consists of only five hours weekly per teacher. The model of playground and home operates far more constantly. This does not belittle the importance of correct grammar and diction in all school teachers. Nor does it imply any less credit for correct speech to the homes where good grammar and diction exist. Fortunately, children preserve good patterns as readily as bad unless bad ones seem more dramatic or vivid.

Correction of Faulty Grammar and Diction. It is useless to attempt to correct a child's bad grammar by telling him he will not be understood. "Me and him didn't have no fun" is quite understandable in spite of its bad grammar. It is more effective with children simply to tell them what is incorrect and what correct. Most effective, however, is exposure to good speech and good reading, since mere rules are monotonous and since good reading and good speech can be made fun.

Bad grammar and diction *per se* must not be confused with certain errors which seem natural in the child's speech development. Nearly all preschool children find confusion in the correct use of pronouns because they hear themselves referred to by a different set of pronouns than they use when referring to themselves. "Me go," "Bobby do" are characteristic two-year substitutes for "I go," or "I do." To nag a two year old about such mistakes shows a lack of understanding of how language develops.

Other Language Faults. Certain errors are characteristic of children of elementary school age,^{416, 643} the most frequent being errors of punctuation, capitalization, case of pronouns, use of adjectives and adverbs, and use of verbs. Some of these errors persist a long time. Although most children have learned how to begin all sentences with a capital letter in the early elementary grades, nearly everyone, even the college graduate, has trouble knowing when and how to use a semicolon.

Few studies have been made of the punctuation items used by children of various ages in their writing activities. Cesandar¹⁹⁴ analyzed 2466 themes written by children from Grades IV to VI and has compiled lists of punctuation to be taught in each grade as a result of these investigations.

Reasons for Language Retardation. If children of two or three years of age are not making real progress in language acquisition they should, if possible, be taken to a specialist for help. There are many reasons why children may not progress normally in the development of their speech. *Deafness* should be the first area of suspicion.* Ten to 20 per cent of school children suffer some defect of hearing.^{1053f} Children who cannot hear the model for speech cannot learn to speak through the usual channels. Many of the best public school systems today have special schools for children who are hard of hearing; most states have State Schools for the Deaf.

Defects of mouth, larynx, or tongue should also be kept in mind; also possible *defects* in the *nerve control* of these organs. Medical examination will reveal such causes if they are present.

Mental retardation is often the cause of retarded language development. We have seen earlier the connection between verbal facility and mental superiority and between language retardation and mental dullness. A good mental test, designed to test general performance rather than verbal performance, should help to provide an accurate estimate of the intelligence of children who do not speak or understand language.

Inadequate or defective model and lack of being talked to will also rob a child of his model for imitation and of a motive for practice. Institutionalized children are conspicuously different in language development from children reared in good homes where there is ample language model. People who lisp, talk too fast, or stammer are bad models for children in the early stages of language learning. Twins, or children very close together in age, sometimes provide each other with sign language or jargon which delays the acquisition.

* Gesell³⁷⁴ (p. 194) says that a child who, at eighteen to twenty-four months, "uses varied well-inflected conversational jargon is unlikely to be significantly handicapped in hearing."

tion of language.^{250, 256} Twins, however, seem by nine years of age to have gained enough language ability to overcome the disadvantage of the preschool years. Only children, who have much attention and talking to, develop more rapidly in language than do other children. Many workers agree that the difference in language development between children of the "educated" or professional socio-economic groups and children of the laboring groups is about eight months upon school entrance. This difference is in part a product of the amount and kind of language model these children hear, and in part a difference in basic intelligence. However, in summarizing the literature on the subject Anderson³⁰ says that we have evidence of a very marked effect of environment upon the development of the language processes in the preschool and early school years.

Children who are exposed to *two or more languages in the learning years* (two to four years) are usually slower in the development of either language than they would be in the development of one language at a time. This is reasonable, since they must learn two or more names for every object and every action. After mastering the fundamental mechanics of each of the languages, however, these bilingual children have the advantage of more than one language and become truly bilingual because they can think in more than one language. The usual recommendation for learning more than one language is to expose very young children to one language only until they have mastered a working foundation in that one (perhaps three or four years of age), then introduce a second language. An occasional psychologist urges the point that too early development of bilingualism prevents the complete conceptualization of objects or situations in either language and, therefore, interferes with complete development in the conceptual or ideational area of intelligence.

Sometimes retardation in language development is due to *emotional causes*. Too much urging to talk or too much praise or emphasis upon language success may place a too great premium upon learning to talk. Some children, sensing the importance of the accomplishment, become afraid to try. Ridicule, nagging, or any other emotional tension around speech will prove sufficient to keep certain types of children from talking at all. Some children under such strain stutter. No teacher should ever be guilty of retarding children's language because she ridicules or nags a child or allows other children to do so.

Stuttering. There are two ages at which stuttering is conspicuous. The peak of the stuttering curve comes at about two and one-half to three years of age. This is a time when children

have enough vocabulary to discover the joy of communication through words. It is also a time when they are making rapid strides in social development and in the urge to communicate, to attract attention and to tell things. Frequently, however, there are not enough words in the vocabulary to permit really clear and facile expression, so the child in his eagerness, stutters. Nearly all children between two and one-half and three years, or at the stage of language development which this represents for the average child, stutter some. Many do it so little that we do not notice it as a problem, but many children continue to have considerable trouble for several months. If this stuttering is recognized for what it is, namely, a stage of language learning, and is dealt with in such a way as to increase the child's vocabulary, and to develop his confidence that he can find the right words, he will soon overcome it. If, however, he comes to regard it as a serious problem and loses confidence that he can speak freely, he is likely to have serious difficulty in overcoming it. He should never be scolded or nagged or referred to as a stutterer or as someone who cannot talk.

The other peak of stuttering occurs upon school entrance. In this instance the trouble is often nervous strain resulting from the adjustments to new authority, to other children, to the routine of school, and so on. The nervous tension created by school entrance may spill over into fingernail biting, or a reversion to thumb-sucking, or a relapse in toilet habits, or, frequently, into stuttering.

A considerable proportion of early primary school stuttering is associated with handedness. Authorities differ as to the importance of cerebral dominance (see Chapter 8) in stuttering,* but the literature in general agrees that it is unwise to force the use of the right hand in strongly left-handed children. Bryngelson¹⁶⁰ in a study of 700 stutterers, found that 61 per cent of them were ambidexterous, as compared to only 5 per cent of the normal population. He found that 57 per cent of the stutterers had a left-eye dominance whereas only 1 per cent of the normal population is left-eyed.

The flare-up of stuttering upon school entrance usually dies down as the necessary adjustments are made. Teachers should investigate the cause and history of the stuttering of each of their children, and should make every effort to correct any causes which can be corrected through the school. Great care should be taken not to force too timid children to recite or read before the group until they can be helped to develop the necessary self-confidence. Severity or firmness of discipline seems necessary for certain children; but

* Fletcher says there is no relation between handedness and stuttering; Orton emphasizes the importance of handedness to stuttering.

timid children should be handled gently. Stutterers, particularly, need great patience and understanding to help them overcome the difficulty.

About 1 per cent of the school population stutters⁹⁶¹ as a long-continued speech habit. Stuttering is more frequent among mentally retarded than among normal children. It is four to five times as frequent among boys as among girls.* It nearly always begins before or during the earliest school years. In Edinburgh 93 per cent of the cases of stuttering in the schools were found to have begun before eight years of age.⁸⁷²

Schools need to understand the language problems of the early primary years better than they now do if trouble is to be avoided, not only in stuttering but also in general emotional adjustment. Witty¹⁰⁷² states the case clearly when he reminds us that for the average child there has always been some sympathetic adult to interpret his language efforts until the time when he enters school. Upon school entrance each child leaves the warm bath of intimate personal understanding for the more impersonal atmosphere of the school room. The child, then, not only faces the problem of understanding and being understood by persons who are strangers to his home and neighborhood; he also faces the problem of learning to talk effectively with children of his own age. Witty says:

It becomes apparent, therefore, that the first language problem of the public school is to assist the child to make normal speech contacts with others in his class. This is not a problem which can be solved in the kindergarten or first grade and then forgotten. It is one which recurs each time a student enters a new group, although with increasing experience the time for adjustment decreases. Many schools consistently ignore this need. The difficulty which most adults find in meeting strangers, and in expressing themselves before new audiences, is evidence of our failure in the school. Embarrassment in speech leads easily to other forms of maladjustment. . . .

Accustomed to talking throughout the day (some writers estimate that the average child speaks thirty thousand running words a day before entering public school), the youngster wants and needs to talk about all the new and interesting experiences which are found in school. Consequently his urge to talk is probably increased. Instead we try to channel his language—at least a large part of it—through the written word. It is small wonder that very soon this reading and writing come to be thought of as bars to learning rather than as opportunities.¹⁰⁷²

READING: PART OF LANGUAGE GROWTH

Reading Is the Major Academic Accomplishment of the Primary Grades. Probably the major all around accomplishment

* Girls are superior to boys in language development at all ages and stages of development.^{874, 868}

of the primary grades is the teaching of adjustment to meeting authority, to contacting peers, to facing a routine job every day whether you feel like it or not, and other personal-social adjustments. The primary academic accomplishment of these grades is the teaching of reading. When the child learns to read we know that he has accomplished many preliminary learnings. He has learned mastery over eye muscles; he has developed basic discriminations in form or shape; he has mastered the abstractions of basic language, both in vocabulary and "language sense"; he has learned self-control in a measure, as well as the personal-social adjustments to school mentioned above. In a sense, learning to read is a graduation from "the school of the before-school-learnings."

There are in the literature numberless studies of the development of reading. Many of these have been well summarized in recent Yearbooks of the Progressive Education Society, of the National Society for the Study of Education, and the New York Association of Teachers of English, in Dolch's Manual for Remedial Reading and in Durrell's Improvement of Basic Reading Abilities.*

Progress in Reading Achievement. It has been found that in *oral reading* children progress rapidly during the first four grades, continue to progress although less rapidly during the fifth and sixth grades, and make very little progress at the high school level.^{405, 704} This is probably because great emphasis is placed upon reading in the first two grades; many other subjects are introduced in grades three and four while reading is given less emphasis; in the fifth and sixth grades reading receives still less time as a subject but is utilized in practically every other subject. Millard⁷⁰⁴ says that regardless of shift in method used in teaching reading, the curve of reading achievement follows a precise pattern of development from grade to grade. The curve is not significantly affected by the change of teachers which occurs as the child moves from grade to grade.

Speed of *silent reading* improves steadily through the first six grades, but only slightly in high school.⁴⁰⁵ Thus many people never improve their speed or comprehension in reading after leaving the elementary grades. One of the greatest handicaps suffered by high school and college students is inability to read at a rate and with a level of comprehension which would make their college work reasonably successful.† This is a serious indictment of our junior and senior high school curricula and methods of teaching.

* See Bibliography. ^{277, 292, 736, 738, 745, 818}

† Davis, R. A., et al.²⁵² report that teachers say poor reading ability is responsible for a large proportion of pupils' difficulties in junior and senior high school. For a detailed discussion of reading failures see Robinson.⁸⁴¹

Readiness to Read. Before children can profit from any given curriculum or method in reading, however, they must be what is known as "ready to read". Reading readiness is the product of mental, physical, emotional, and social development.⁴⁴² This development is achieved by the normally growing child, exposed to normal experiences in the preschool and kindergarten years.* On an average over the country the child is generally assumed to be capable of beginning to learn to read at about the time his mental age reaches six and one-half years.†

Hollingworth⁴⁷⁶ reports that the correlation between reading ability and IQ is + .60 to + .90. Of four children with IQ's over 180 found by her in New York City, every one had learned to read simple matter fluently before or during the third year of life.

Gray⁴⁰⁴ enumerates the requisites for reading readiness as follows:

... keen interest in reading; reasonably wide experience; facility in the use of ideas; ability to solve simple problems and to do abstract thinking of a very elementary type; ability to remember ideas, word forms, and the sound of words; a reasonable range of vocabulary; command of simple English sentences; good health, vision and hearing; ability to see likenesses and differences in word forms, and to discriminate between sounds of words; normal speech organs; emotional stability; and some degree of social adjustment.⁴⁰⁴

Gesell³⁷⁴, p 209 lists maturational indicators for reading as follows:

1. Normal (or corrected) vision.
2. Normal hearing.
3. General mental level of 6 to 6½ years.
4. Good motor coordination, particularly manual control, as evidenced in drawing.
5. Relatively mature personality.
6. Normal use and comprehension of language.
7. Articulation not more than slightly immature.
8. Relatively even development in the various fields of behavior.
9. Interest in, and ability to follow, stories of moderate length.
10. Ability to control attention on set tasks.
11. Ability to adjust to the requirements of schoolroom routine.

Betts^{86, 87} points out that confusion of symbols is somewhat typical of normal six-year-old children; and that 80 per cent of six-year-old children are normally farsighted, which means that

* For further discussion of the relation of reading to developing maturity see the work of Olson reported in Chapter 1.

† Doll²⁷⁹ says that, although some individuals learn to read effectively in the preschool years, a more successful time for instituting formal reading is about the third or fourth grade or at life age of nine or ten years.

too much reading is a strain at this age. He has studied reversal tendencies (reading "saw" for "was" etc.) carefully and finds them the normal reaction of an immature child required to read too early. He says some children exhibit this tendency until they are seven and one-half years old. This tendency is particularly strong in left-handed children, who have a strong tendency to move from right to left in both reading and writing.

Growth in all of these areas which are involved in reading readiness is a natural part of the development of early childhood. That reading involves a test of so many developmental areas, however, is the explanation of why so many children fail to accomplish this important part of the first grade curriculum.*

Wide Individual Differences in Reading Readiness.

Children vary widely upon entrance to the first grade in their readiness to read. Bennett,⁸⁴ in reviewing a summary of the literature on reading disability, presents a table showing seventeen groups of reading disability cases. Boys represent from 60 to 100 per cent of the cases in each group. Difficulty with language as represented in the development of ability to read is only part of a total sex difference in language development in favor of girls. Extensive studies of language development† show a consistent, though at some stages only slight, advantage of girls over boys at all stages of language growth. Since reading success is correlated with general developmental progress it may be that the conspicuously greater preponderance of so-called reading disability cases among boys is due not only to the sex difference of language ability, but to the general physiological lag in development which, for boys, is about one year at elementary school entrance and nearly two years at high school entrance.¹⁰⁰¹ Variation in teaching methods, in the character of materials offered, and the general procedure in the classroom also has an effect upon how children use what readiness they possess. Children who are mentally able and socially mature can overcome not only handicaps of growth in other areas but also bad teaching methods more readily than can children of lower mental development or of retarded social maturity. It is important that teachers avail themselves of a knowledge of the developmental level of each of their pupils at any stage of learning on any school level. It is imperative that they have such knowledge when trying to teach children to read.

* Hines, Alice.⁴⁶⁸ Findings: Approximately one-fifth of the first grade children were repeating the grade. Seventy-five per cent of these were children who were mentally immature for reading, viz., they had mental ages ranging from four to five-and-one-half years.

† Reviewed by McCarthy.⁶⁵⁸

Preparing Children to Read. Streitz⁹⁶⁵ reviews the literature on reading readiness and substantiates the findings of Gray's summaries which state that maturation in several areas of growth is basic in determining whether or not a given child is ready to read. She recommends that, while no attention should be given to formal reading instruction in the kindergarten, much can be done to develop reading readiness through listening to stories read to the group, looking at picture books, and engaging in other experiences related to extension of working vocabulary and love of books. There are a number of tests of reading readiness referred to in Streitz' article.

Streitz reviews an experiment which was set up in the public schools of Cincinnati to deal with 400 children of legal school age but who were developmentally immature and would probably become reading failures. The basis for the program was health, language development, and enrichment of experience. What was done with the health program is suggestive of what can be done. Physical corrections were undertaken in a clinic; a daily program of feeding, rest, fresh air, and exercise was set up. Along with this was a program of special visual education and conversation in the classroom, many excursions, and such experiences as would help tenement children to widen familiarity with plants and animals. No reading was attempted in the first year, but was introduced instead as part of the second year of schooling. Careful checks on health and social adjustment were kept. Streitz reports that "the results seem to indicate that a large proportion of this disadvantage [of mental age] and the apparent immaturity is due to physical conditions and the children's home environment."

Streitz concludes that there seems a possibility that we are placing too much emphasis upon actual reading in the primary grades of the majority of schools. Richer experiences and fuller maturity in general may prove a better major emphasis in the long run. Since she is one of the best experts in primary education in the country it would be worth while thinking very carefully about her conclusions. She makes these generalizations:

... that if any learning is begun before the organism is mature, the development cannot possibly attain normal maturational levels; that if the organism is not 'ready' we need devices, some machinery, or some mechanical way of stimulating the organism to respond. So teachers have had a fairy sitting upon every word in order to aid the child in maturing, instead of having actual experiences that need no such dressing up. Irrelevant material is always beyond the child. If we wait, the proper connections are made and the child can then proceed on his own steam.⁹⁶⁶

Stages of Learning to Read. The Thirty-sixth Yearbook of the National Society for the Study of Education⁷³⁶ portrays the stages of learning to read as follows: (1) development of reading readiness; (2) accomplishment of word recognition and other fundamental steps leading to the place where the child can engage in continuous, meaningful reading of simple books, can direct his attention with interest and absorption to the content, and has acquired an interest in independent reading; (3) rapid progress in the perfecting of the fundamental skills, habits and attentions necessary to clear comprehension at good speed in both silent and oral reading; (4) extension of personal experience at a rapid rate and the acquisition of increased power, efficiency and excellence in reading; (5) the refinement of reading interests, habits and tastes. Stage 1 is accomplished as a rule in the preschool and kindergarten years; stage 2 in the primary grades; stage 3 in the middle elementary; stage 4 in the upper elementary if the other growth stages have been accomplished; stage 5 is achieved in the junior high school.

One conspicuous point is brought out in reading ability studies. Unless the school has made a special effort to establish homogeneous groupings, there will be found extreme differences in reading ability in all grades. Children in the third grade vary all the way from complete inability to read at all to genuine maturity in reading habits. Bobbitt¹⁰³ studied several thousand senior high school freshmen and found that 4 per cent were unable to score above the third grade level in reading; nearly 25 per cent fell below the sixth grade reading norm. Yet some of these children achieved a level of reading characteristic of college graduates. Each teacher faces the responsibility of determining the level of accomplishment as well as the needs of each of her children, and to adapt instruction not only to increase the level of maturity in reading but also so that no child will fail longer than necessary in other subjects because he lacks reading as a basic tool with which to attack them.

Stages of Development in Reading Interests. Judd⁵⁶⁴ traces the development of children as a background for choice of reading interests. He says that primary children are, as a rule, more or less imitative, are deeply interested in the people and things in their immediate environment. They are largely uncritical of themselves and easily satisfied with their attainments. In the middle grades, however, they cease to be docile and imitative and become increasingly self-conscious, self-assertive, and more or less combative. These characteristics are a natural accompaniment of moving into the gang age in social development. Adolescence brings a new range of interests, a new consciousness of self and of the young person's

relation to his friends, a new idealism with its aspirations for accomplishment.

Understanding this, the teacher understands something of what reading content should interest children. Terman and Lima⁹⁹² emphasize the fact that children less than five years old love to have stories told or read to them and are delighted with rhymes and jingles. Animal and nature stories, especially those which involve conversation with or by animals, have a strong appeal. Interest in simple here-and-now stories of everyday affairs like the day's routine, the travels of the fire engine, or the grocery boy reflect the child's interest in his own routine life and the things in his immediate environment.

With a widening of the child's social and intellectual experiences his horizon of interest widens. As a rule children in the primary grades are still interested mainly in local environment: accounts of toys and games, of pets (conversational animals who live a family life or go on adventures still dominate in popularity) and homes and parents, and, reflecting the great new interest of their lives, the affairs of the school. This range of interest includes holiday stories around any given holiday time. Dramatizations around stories read for holiday celebrations help to clarify and fix knowledge, e. g., the landing of the pilgrims. Any stories of other children like themselves, who live as they do, are of great interest. Interest in Indians develops here, partly because most children have owned an Indian suit or visited some part of the country which is noted for an Indian incident. Interest in less dramatic or primitive groups is, however, delayed as a rule until later.

As we saw in Chapter 6, interest in "funnies" begins almost as soon as children can read. Some clever primary teachers are competing with this interest by using other parts of the newspapers as a means of increasing vocabulary. The headlines and large print are brought to the classroom and the children pick out the words they know. This appeals to their feeling of being grown up and doing as their parents do. It proves a good means of practice in word identification and is an excellent background for interest in current events in the later grades.

Pupils of the middle grades want to branch out in their interests. They want to take trips into the world of other nations, to explore habits and ways of living different from their own. They have a concern with why things are as they are, with how things work, where milk and other food and clothes come from. Most of them love fairy tales of one sort or another. However, as a rule, boys are more interested in the whys and hows, and girls in the fairy stories. Celestine¹⁹³ found that animal stories of a realistic character are a

dominant interest of nine year olds, at which time stories of children of other lands also compel interest. Boys of this age are interested in adventure stories like the Boy Scout Series; girls like stories of home and school life. Action, adventure, excitement, and mystery as well as realism, suspense, humor-mischief, stories of adventure and bravery, of sports, airplanes and other inventions are reported by Lazar⁶¹¹ as of great interest to children in Grades IV-A to VI-A inclusive. Speed of silent reading develops rapidly enough from the age of seven or eight to twelve or fourteen that this interest in a wide variety of stories can be used to fix habits of love of reading for the later years. More voluntary reading is done between ages nine and fourteen than at any other age as we shall see below. We should not allow this habit to fade.

As children move into the upper elementary grades and junior high school, interest in stories of adventure like the Pony Express continues to increase for boys. Stories of how and why things work as they do, such as stories of invention and of informational material, make a strong appeal to them too. Fiction reaches a high point of interest for girls at around twelve years of age, at which time stories of adventure and accounts of people become popular. Both boys and girls like stories of boarding school life, perhaps as a reflection of their own half-felt desire to escape what appear to them as the restrictions of home life. From twelve to fifteen years the child's interest in a broader environment is reflected in interest in history and biography. Adventure still occupies an important place. Boys lean toward newspapers and current events, sports, and hobby literature. Girls read fiction, movie magazines, with a preference for the sensational and for impossible situations of wealth or romance.

Interests at all levels are conspicuous for variety. They change clearly from one level of development to the next, but the interests of one level merge into those of the next, and vary with sex, mental age, background of experience, availability of interesting reading material, and home influence. Unless children are given guidance they adopt narrow interests in reading and fail to enlarge their experiences through reading. On the other hand, with guidance they may expand reading interest rapidly, thus expanding their life experience as much as it is possible to expand it through reading. Much depends on the teaching methods used and the material made available. "Each teacher faces both the opportunity and the obligation of studying the interests of her pupils and of utilizing and stimulating them in appropriate directions."⁴⁰³

Recommendations for Reading Curriculum. Unfortunately, reading curricula in the past have been largely organized in terms

of activities assumed to be desirable for children at the various grade levels. This practice has been repeatedly emphasized in recent literature as inadequate. Such factors as the physical, mental, emotional, and social maturity of the learner should be considered. Gesell^{377, p. 379} says: "There is no simple method of learning or teaching reading. There are multiple methods—visual, auditory, manual and phonetic—which should be used freely and variously and separately and in combination to suit the fluid psychology of the school-beginner, and to do justice to the individual differences which prevail among all school-beginners." Until recently all introductory reading matter has been based upon content which is of interest to five and six year olds, but which is trivial to the eight year old who still needs primer material, and impossible to the adult who may be trying to learn to read.

There should be created a wide variety of interest material both at the beginning and at the more advanced levels of reading in order to stimulate reading among those upper elementary children who need practice in reading but who reject the content of most of the "readers" offered them. Wide use of well-selected resource material helps in this. One of the greatest problems of psychological clinics or of special reading teachers is to find adequate practice material on the second or even on the fifth grade level, the content of which will interest the extroverted seek-the-gang boys and girls who, because of their deep interest in the gang, give too little attention to practice in reading. There is an abundance of the imaginative story-book materials which interest the introvertive children who already love reading and get much practice in it. Popular *Mechanics* and similar magazines captivate the extrovertive or out-going boy who can read at a fairly advanced level. But until he can read at that level he is likely to find little of interest in most of the reading material available to him.

A word is needed here about older children who find themselves in the fourth or sixth grade with a reading level equal to the second or third grade. Such children can read easily and with satisfaction the rare books which are written in the size of print and difficulty of the vocabulary appropriate to their second or third grade level of ability and which have a content challenging to the interests of the older child.* Given enough of these books, gradually stepped up in difficulty, these children will get the necessary practice in reading which will improve their level. Even more important, they

* Professor Helen B. Sullivan of Boston University has set up lists of some 400 titles of books for slow learners. These books have an easy vocabulary and high interest content. The lists have not been published, but may be obtained from Professor Sullivan.

will find themselves liking to read. Unfortunately, however, few teachers or school librarians understand this. Such children, sent to ask for books on their reading level, usually return saying, "The teacher said I shouldn't read those books. She said I ought to be ashamed reading baby books. She said I ought to be reading fourth grade (or sixth grade) books." This mistake is not often made in public municipal libraries in the larger cities where specially trained children's librarians are available. These libraries usually place interest in reading at a premium. They, therefore, search carefully for any book which seems to stimulate the interest of a given child, regardless of its "grade" level. Once they are sure of the reading interest of such a child these librarians encourage trying something a little harder saying, "I'm sure you'll like it. It's a good story." Teachers should adopt more of this philosophy.

Gray,⁴⁰⁸ in summarizing investigations relating to reading, reports that with few exceptions investigators find that the percentage of children who read books *of their own accord* increases rapidly during the primary and middle grades, reaching a relatively high level in the junior high school. Terman and Lima⁹⁹² in a study of 808 unselected children report the average number of books read per month as follows: six to eight year olds, 0; eight to ten year olds, 1.5; ten to twelve year olds, 2; twelve to fourteen year olds, 3. In the junior and senior high schools, however, wide differences were found: in some schools pupils continued to read widely; in other schools there was a notable decrease in the amount of reading done. These authors feel that this difference was due to differences in the character of stimulation and guidance provided by the teachers in these schools and to the availability of adequately interesting reading material.

They summarize by saying the problem of the primary grades is to teach the skill of reading and to arouse interest in independent reading; of the middle grades is to provide a wide range of materials of different ability levels and extensive interest content compatible with the interests of children of these ages. They consider the junior and senior high school years as a critical period in the maintenance of interest in reading. Loss of interest in reading at these ages may be, and probably is, in part due to the intense interest in social activities characteristic of adolescents, and in part to the inroads upon reading time made by radio, movies, and other commercialized recreations. It is doubtless also due to teaching failures, especially in junior and senior high school English classes where the kind of reading material offered is lacking in interest.

DEVELOPMENT OF THINKING AND REASONING

Thinking and reasoning are generally assumed to be the crowning achievements of intelligence. The ability to utilize experience in the drawing of practical or theoretical conclusions, and to solve problems, as we have seen earlier requires, first, a background of sensation and sense perception. For the highest types of reasoning a genuine facility with objects and a wide background of experience are necessary; and for certain types of higher reasoning language mastery is also required. So much background is needed, in fact, that many writers claim that children are incapable of reasoning before seven years of age; others say before twelve years. Much is written in prose and poetry about the age of reasoning, and many primitive and civilized ceremonies center around the assumption that children come into reasoning power and the capacity for making important decisions for themselves with the onset of adolescence.

If, however, we define reasoning as including all reactions involving choice, or all activity used in problem solving, or all logical thinking, we must understand that these capacities do not spring rapidly into being at any age. They are in the process of development from infancy. Neither can we accept the idea that some people are born to reason and others not to. Within the limits of general intellectual capacity the ability to reason can be developed—to higher perfection, of course, in the gifted of intellect, less highly in the subnormal. Through training in sensory judgments, through widening horizons of experience, through the development in the technic of decision making, and through experience in solving one's own problems, whatever reasoning capacity any given person possesses can be brought to an optimal level. If, however, the groundwork is not laid in general development, and if training in the actual processes of thinking is not given, whatever native capacity there is cannot function at its best.

What Reasoning Is. Perhaps we can best understand what is meant by giving children opportunities to use whatever capacities they possess if we analyze briefly what is involved in reasoning. Any thinking involving an analysis of *cause and effect* relationships may be classified as reasoning. This does not, of course, mean such conditioned associations as muscle jerk responses to bells which are rung. It does mean, however, any intellectual process which marshals facts or experiences into orderly sequences. Such a comment as "Mother, why does the drinking fountain choke?" made by a three year old who thought the fountain was coughing because it gurgled, shows an association between choking and coughing, and an application of this knowledge to a concrete, present situation. Another three year old observed that a person who had grav

eyes must be old. One two and one-half year old had hurt her neck. A playful older child suggested that she blow on it to relieve the smarting. She replied, "I can't. It's behind." In a less verbal way we see a two year old relating cause and effect when, in running with harness dangling, the harness is caught in a snag. He stops, tugs, discovers the cause, backs up, and releases the harness.

Whenever two variables vary together, people are likely to say that one causes the other. Due to faulty training, many adults attribute the causal relationship to the wrong variable or ignore the possibility of a third agent causing both. For example, seeing a high percentage of feeble-mindedness in the slums, they may assume that the slums cause the feeble-mindedness, thus ignoring the fact that people of less intelligence tend to be unable to care for themselves on a higher socio-economic level and therefore gravitate to slums. We observe the same faulty reasoning in a four year old who sees trees waving as the wind blows and concludes, "Trees waving make the wind blow." Constant training in accurate analysis of cause and effect relations is, as it should be, a major concern of schools. Science courses carry a particular responsibility for this training. But homes and preschools should also recognize this thinking process in its beginnings, and plan a definite program which will give accurate knowledge and real practice in such thinking.

Generalization and *deduction* are parts of another important type of reasoning, the same in some ways as relating cause and effect, but involving wider conclusions and an ability to apply principles when needed. Although children seem somewhat slow in accumulating a wide enough background of experience from which to draw general conclusions, we see the process in action in four year olds in the following instance: At a school which promotes children into kindergarten on their fifth birthdays John, age four, said to Carroll, also age four, "I'm five." Carroll replied, "No, you're not. If you were you wouldn't be in this school."

We also see it when Eddie, age three, says to Ralph, age four, "When I'm five I'll be older than you"; whereupon Ralph answers, "No. Next Christmas you'll be four, and next Christmas I'll be five. I'll always be older than you."

Drummond¹²⁸⁵ reports a four-year-old child who discovered that, although more blankets would keep her warm, more blankets would not keep her doll warm, and thus discovered for herself the principle of body heat.

However, among young children, as among adults, we see many false conclusions. One five year old thought standing in the rain would make him grow because it makes plants grow. Another thought men were filled with sawdust because dolls were. Charlotte,

age four, was overheard saying one day, "My birthday will come when it snows." A few days later the teacher said, "Look, children, it's snowing." Charlotte said, "Then, when I get home I'll have a birthday."

A practical difficulty met by school teachers in teaching generalizations is to get children to apply names accurately. One kindergarten teacher, in trying to teach the concept of squareness and roundness, always presented blue squares and red circles. She found several of the children associating the two together, thinking that all squares were blue and all circles red. We find some children, and adults too, concluding that all Polish people are fine people because the only one they know is fine, and that all Italians are bad because Al Capone is bad. Such jumping to conclusions is extremely faulty reasoning. Children must be taught to delay judgment a reasonable length of time, or to hold judgments in suspense ready for change if further experience proves the first judgment wrong.

Problem solving is the form of thinking most generally agreed upon as a type of reasoning. Any use of past experience, of presently available tools, of skills and habits to solve a practical or a theoretical problem is the form of thinking which differentiates man from the animals. It is in this area that children can be seen to reason most clearly. The year-old child, pulling the table cloth toward him to get something, is using cause and effect to solve a present problem. Bobby, age three, who wants to go down the slide backward as he has seen other children do, finds that he cannot turn himself around on the top step. So he descends, turns himself around, and manages to ascend the steps backward in order to be in position at the top. He has solved a problem. Such problems are not solved in words; they are solved in action. Use of language as a tool in reasoning and problem solving is one of the last uses made, as has been said earlier. It is because children do not ordinarily solve problems in words, and because they do not generalize readily or apply principles concretely, that many people discredit their reasoning power.

Piaget is a classic example of this discrediting of children's reasoning power. His chief approach to the analysis of reasoning in the child was by means of observing and recording language responses of children. He concludes^{788, 789} that young children are primarily egocentric in their thinking, the child being concerned mainly with himself without troubling to make himself understood or to place himself in another person's position. Not until seven years of age, he says, does the shift from egocentric to socialized thinking occur.

At this time the child becomes more deductive in his thinking, develops more rigor, becomes more objective, and from this age onward his thinking becomes more like an adult. Piaget concludes that up to the age of seven the child shows no evidence of logical reasoning in this thinking. From seven to eleven or twelve the child's reasoning is based largely upon direct observation. Not until eleven or twelve does he become able to make assumptions which he does not necessarily believe, or which are more abstract.

Hazlitt⁴⁶¹ however, differs from this in drawing conclusions from a series of experiments carried out with groups of children ranging in age from three to seven, in which ability to make an exception to some principle and to generalize was tested. With regard to the first problem, it was found that children make a practical exception at an age considerably younger than that at which Piaget considered them capable of such thinking. The results from the second experiment seemed to show that, at all the ages tested, there was present in the mind of the child some basis for generalization; the youngest took the broadest basis, the oldest took the narrowest. The writer suggests that Piaget's picture of a striking difference between adult and childish thinking is due to "an over-valuation of verbal expression as a measure of thinking and an exaggerated view of the logicity of adult thought."

Apes are capable of simple problem solving.⁵⁹⁸ Children approach similar problems much as apes do excepting that children often accompany the solution with language.^{18, 97} One careful study⁴⁶⁵ of problem solving capacity in children between two and one-half and three and one-half years of age, between four and five years, between six and ten years, and in a group of adults found that the ability to do the problems increases with age and that responsiveness to problems also increases with maturity. There was little or no evidence that the ability to solve problems in the adult differed in any respect save degree from the ability in the child. A special study of reasons given by the subjects showed that the reasons given by adults were more complex than those of the children but represented a gradual transition from a less mature to a more mature type of response. All groups including the adults gave evidence of a use of less mature reasons when the problems were difficult for the group in question.

Gesell³⁷⁴ reports that even five year olds have difficulty in distinguishing between physical and psychological causation. They cannot separate matter from spirit, hence animate their toys. Gesell's comment on this is that although the five year old's capacity for reasoning is similar in kind to the reasoning of adults,

it is primitive indeed when we lay it beside the five year old's facility with language, which is highly advanced as a civilized accomplishment.

We can see, then, that although the reasoning of children seems the same in form as that of adults, it differs in being simple and primitive.

What This Means in Dealing with Children. It matters a good deal in practical dealing with children whether we believe them capable of some reasoning, or whether, believing them to be incapable, we assume that they can learn only by physically conditioned responses. If we believe the latter, we tend to make discipline physical, immediate, and concrete. If, however, we believe that children do reason, no matter how primitively, we tend to teach by natural consequences, by pointing out sequences of events, and by helping children to draw conclusions and to solve their own problems.

General recommendations in child training parallel the findings in child development research. Discipline for children less than two years of age, it is generally recommended, should be concrete, quickly following the situation needing discipline, and not accompanied by too much talking. After two, however, as the child acquires language facility and some reasoning capacity, the recommendations are in the direction of less and less physical or concrete punishment, more and more in the direction of "consequences of action" and helping children to discover for themselves the results of good or bad behavior, talking or "reasoning" coming to have a place. During the two- to five-year period parents and educators are urged to make increasing use of concrete situations as a basis for generalization, and to increase constantly the situations in which the child is encouraged to meet issues and solve problems for himself. Simple verbalization helps. Such sequences as: come in from play, wash, eat, for example, must be repeated over a long time before a child will form the automatic habit. He will "get the idea" and form the habit much faster if he is helped by having it pointed out that "we wash after playing so that we can have clean hands when we eat."

Although a program of "natural-consequences-of-the-act" is recommended, care must be taken to see that no child is forced to make decisions or solve problems which are too complex or in which the consequences of a mistake are too serious. If this happens, he may become discouraged or frightened away from decisions and independent problem solving. Even for the six- to twelve-year-old child much learning is not a consciously thought-out process. It is, rather, a casual by-product of concrete experience, an incidental

activity in a world of factual living. Although the elementary school age is above all a period of rapid learning, most learning still takes place through conditioning, through chance observations, through the random experimentation which we call "trial and error," and through imitation of others.³⁹⁵ Only the more "intellectual" children learn before adolescence by intention to learn rather than by chance or by adult motivation. In spite of this, however, all authorities agree that children of upper elementary school age show rapid progress in capacity to generalize and to make deductions. They become increasingly able to draw conclusions from fewer and less concrete situations than are necessary in teaching preschool and primary, or lower elementary school children. They learn fairly rapidly how to apply rules to specific situations, and they become more skillful in solving problems in the mind as contrasted to the necessity for solving them in concrete reality as younger children must.

Reasoning Capacity Continues to Grow Well into Adulthood. A careful analysis of the available data lead Brooks¹⁴² to the conclusion that mental growth, especially growth of the power to reason, continues to the end of the 'teens, or, under stimulating conditions, even longer.* Due largely to increasing experience and to better reasoning power, an individual at twenty-five or thirty has more mental ability than he had at twenty; he reasons better on complex problems; he manages himself and his affairs more efficiently; he adjusts to increased complexity in his life situation. Similarly, if growth is not cut off, the man of thirty-five or forty manages his affairs better than the man of thirty.

Such a conclusion comes from common observation. That it has to be said at all is due to the preponderance of literature produced ten to twenty years ago which stated bluntly that mental ability reached its maximum capacity at between twelve and fifteen years of age. These statements were made after mass examination of the thousands of boys who were "mental tested" for the World War of 1914 to 1918. On the basis of those tests many thousands of fifteen year olds made as good scores as people older than that. It

* Freeman and Flory³⁴⁵ report in a longitudinal study covering ten consecutive years that intellectual growth shows a slight acceleration in preadolescence, a moderate decline in rate of growth beginning in early adolescence, and a continuance with little further decline in rate up to the end of adolescence, or at least to nineteen to twenty years of age. The terminus of growth was not reported since the children used were still developing at the age of nineteen or twenty years when the study went into publication. Sex differences were reported as negligible in spite of known differences in physiological development between the two sexes. The present assumption about intellectual development is that innate capacity to learn goes on developing to twenty or more years of age and that depth and breadth of reasoning capacity increases after that.

was, therefore, concluded that mental growth stopped at twelve or fifteen.

Thorndike¹⁰⁰² helped greatly to clarify this situation when he studied a wide range of ages, using tests which emphasized more complex and seasoned aspects of intelligence than had been included in the earlier intelligence tests. He pointed out that the predominance of verbal and mathematical tasks in the previously used tests was like those which occupy the intellects of children from five to fifteen rather than like those which occupy people from twenty-five to thirty-five. His book, published in 1928, offered great encouragement to adult educators because he showed that intellect can continue at a high peak of efficiency until around thirty-five, losing only very gradually in speed and memory thereafter until quite late in life. He emphasized the point that most intellects seem to improve little or even to decline after leaving high school or college because they encounter no vigorous, stimulating after-school training.

Brooks, in a summary of the literature on growth of intellect from fifteen to twenty-two years, says:

The best available evidence on the intellectual development of young people from fifteen to twenty-two leads us to place great emphasis upon the stimulus value of the environment which surrounds them. . . . Critical, constructive, creative thinking in setting up educational programs for youth in the 'teens and early twenties may be expected to yield important intellectual and social benefits.¹⁴²

Individual Differences. We must recall individual differences here again. We have not only the children whose general mental level is low and hence who cannot learn intellectual material; we have also a fairly wide range of memory capacity and ability to understand among children of the same general IQ level. Some seem "mechanical minded," being capable in the area of handling things; some seem "verbal minded," having better ability with words than with things; some seem dominantly "social-minded," having their greatest ability in responsiveness to people and in clear judgment about themselves as people. The typically feeble-minded child, however, is low in all intellectual capacities, having short attention span, poor understanding of factual or of personal relationships, poor auto-criticism, and is limited in his use of general experience. Gifted children on the other hand are facile in all these areas.⁹⁹⁰

General Maturation and Reasoning Capacity. We must bear in mind here, as everywhere else, the importance of general developmental maturity and the effect of general environment upon children's reasoning capacity. Although the brain and nervous

system are practically complete at birth so far as evolutionary development is concerned, not all the fibers function at that time, as we have seen in the discussion of sensory development. The length of the nerve fibers increases of course, as the child's body lengthens out, and the size of the brain reaches its maximum during childhood. What growth in size occurs during adolescence is confined to development in length and thickness of nerve fibers and to an increase of contacts between nerve fibers.

Cole, in summarizing the literature, says:

Evidence seems to show that the complexity of the brain—that is, the total number of contacts between fibers—is enormously increased during the early years of adolescence. The fibers also become thicker and longer, so that many fibers not in contact during childhood now touch each other. . . . The increased ability to think and, in particular, to generalize are probably the most obvious results of this increased complexity in the brain.²¹⁷

She adds that the greater ability to reason is, of course, also due to the wider background of experience from which the adolescent can draw as compared to the limited experience of the younger children. But the spontaneous joy which most adolescents display in sheer mental activity (one should not judge this alone by their reaction to the topics presented within the schoolroom) leads one to believe that there is some characteristic of inner growth which stimulates this activity.

QUESTIONS FOR CLASS STUDY

I. Visit a I-A grade. Select some child who is retarded in language development. What is responsible for his difficulty? Outline a practical plan for helping him if you were his teacher.

II. Visit an upper elementary grade. What language experiences are the children having? Would you judge these experiences to be didactic and meaningless, or alive and meaningful? Is there any plan for individualizing instruction? If not, could you make a practical one?

III. Do you feel that your own reading interests, and the amount of reading you did, slumped from the Junior High School through the Senior High School? How usual do you feel your own experience to be? What could be done in high school to keep reading on an increase? Are there natural growth interests in high-school-age children which compete with reading interests?

IV. Do you have any plan for extending your own active vocabulary? For improving your own diction and use of grammar? What would you consider the advantages of such improvement?

V. Are the elementary and secondary schools which you know encouraging or discouraging reasoning power in children? What has progressive education contributed to the improvement of the teaching of reasoning?

VI. How can a parent help a child to reason accurately? Did the discipline your parents used on you improve or discourage your reasoning capacity? Where and how did you develop such reasoning capacity as you have?

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12. SOCIAL AND PERSONALITY DEVELOPMENT

General Personality Trends

PERSONALITY, WHAT IT IS AND HOW IT HAS BEEN STUDIED

Children grow socially as they grow physically, from year to year developing greater complexity of social behavior, greater skills in getting along with people, and greater self-control. As in the discussion of every other type of growth we must realize that, although we discuss stages or steps in this growth, it would be a serious mistake to assume that these steps proceed in the same order or during the same years of age for all children. Social and personality development is an orderly process in each child, but it does not follow the same precise pattern from child to child. We have already discussed "fast" growers and "slow" growers as children whose growth is faster or slower than the average. In physical and in mental growth we see all kinds of variation in tempo of growth and hence in physical and mental maturity of children of any given age or of any school grade level. These differences are equally wide in social growth. They are probably even wider in personality development which is, if we can judge from the evidence now available, even more responsive to the amount and quality of experience to which the individual has been exposed.

What Personality Is. The ordinary lay person's conception of personality as that which makes one popular with people is not the psychologist's conception. The psychologist thinks also of the dominating, destructive attitudes of a gangster, or the blank emptiness of an idiot as making up part of the complex of feelings, attitudes, and behavior which is personality. Sandiford defines an individual's personality as "what he really is; it is the state of being a person."⁸⁵⁶ In summarizing the literature on personality and definitions of personality he concludes that any study of personality must include the hereditary, physiological, and psychological elements of personality, and must consider the interaction of these with the environment. He warns, however, that to consider only those aspects of personality which are evident in observable, or overt,

behavior, is to miss an important part of it, since that part which is known only to the individual himself is important. One may be and feel many things which, as a controlled or "civilized" person, one does not show to the world in one's behavior.

Lay people are likely to say, "O, he (or she) has so *much* personality." The psychologist will answer that every person has "much personality," since every person has a complex of traits, attitudes, and characteristics. When these make up an "ineffectual" personality we have what the lay person means by "little" or "no personality." Every person has great depths of feelings and attitudes which do not appear evident to the lay observer, but which motivate behavior and in exceedingly important ways determine the type of personality reaction peculiar to each individual. This substructure, called the "subconscious" (see Chapter 3, p. 119f) by psychologists, is present in all people and plays a vitally important role in behavior reaction. It determines the quality of personality reaction. In the study of personality, then, it is the quality of personality, rather than the quantity with which we are concerned. We shall be concerned here with personality as the complex of feelings, attitudes, and behavior which make each one of us the unique person that he is.

How Personality and Social Growth Have Been Studied.

Murphy⁷²³ describes in considerable detail the studies done on the social development of children. There are over eleven hundred titles in the bibliography of this book, a considerable proportion of which are concerned with the analyses of social behavior and social growth in children. This is a substantial body of research material. Many of these studies are based upon direct observation of the behavior of children who were placed in controlled experimental situations and detailed stenographic records of behavior taken. Others depend upon ratings of traits or behavior on check lists carefully worked out to cover the total range of possible behavior. These ratings may be made by especially trained experimenters, or by teachers who know the children well, often by both; they involve ratings of children in free play or work situations.* Other studies^{996, 752, 999} are based upon stenographic reports of everything a given child does or says in given half hour or longer intervals. An analysis of these records may be used to classify social contacts, play activities, content of conversation, and the like. Some workers, among whom Jones⁵⁵⁶ of California is outstanding, feel that overt, or observable behavior of children does not tell enough of the story of emotional reaction or inner feeling in social

* Authors are not agreed as to how accurate such ratings are in portraying real personality.⁵³⁵

situations. They have done much work with galvanometric, or electrically recorded measurements of children's inner reactions under controlled conditions.

Many studies are based upon interviews with parents or teachers, backed up by direct observations and life histories. These are most valuable when the direct observations and parent contacts are continued through a number of years of development. These studies were referred to in Chapter 1 as longitudinal studies because they carry the same children through successive years of development.

Goodenough³⁹⁷ who earlier in her work used methods of sampling children's behavior over short periods of time, has later expressed doubt as to the value of such samples because of their neglect of the total personality of the child and of the social setting in which the behavior is stimulated. Although sampling and controlled situation methods are useful for establishing frequency of given types of behavior at given age levels or under given situational stimuli, they are probably more useful for the opening up of theories and of insights into the deeper meanings of behavior than for clinical diagnosis of children's behavior. The present trend in studies of social behavior and personality growth seems to be in the direction of attempts to understand the total personality structure and function as a background for specific behavior reactions, and in the direction of studies of the total interaction between individuals and groups or between the individual and the total situation, both past and present, in which he finds himself at the moment of any given behavior.

One of the most widely used current methods for the study of social behavior in relation to the total personality is the study of children's emotions and attitudes through the "projective method," which was discussed in Chapter 3.

The Rorschach ink blots,* in which ink blots are presented and the subject is asked to say what they resemble, offers a promising way of getting at the inner content of mind and personality. The projective technic and Rorschach methods, however, are laboratory devices. They do not give us the child in critical action in everyday situations where he deals with his routines, his toys, or his playmates.

Attempts to study individual children in a social group are fairly fruitful in revealing such personality traits as are related to group reaction. Olson⁷⁶⁴ has developed schematic diagrams which show how many times within a given period any given child seeks or is sought by other children. From this can be judged something of the

* See The Rorschach Method, entire issue of *Journal of Consulting Psychology*, March, 1943. See also Bibliography.^{79, 109, 225, 342, 449, 509, 572, 542}

These tests are used in a variety of ingenious ways.

leadership and influence of any given child upon the group. Judgments of the quality of this leadership or influence is revealed by accompanying descriptive reports of what actually happened. Other studies^{167, 502, 711} have paired given children with all the other children in a group for set periods under controlled situations, studying dominances or submission and other qualities. Still other studies⁷¹² of preference of children for each other, and ratings of children by each other are further steps in the direction of evaluation of total personality reactions.

In summarizing present available research on social and personality growth, Murphy⁷²³ concludes that, although in agricultural experiments one may try out different soils for growing different plants, children are more subtle; in fact, they are so complicated that a generation of intensive research has failed to produce definite laws of the soil-rain-sun level of simplicity. As for defining laws regarding the kind of social behavior to expect from different types of children, under different conditions, we have as yet made only a beginning.

Exactly how personality develops as a product of the interaction between the inner impulses and needs of the individual and the play of his environment upon him needs much study. We do not yet know how parental influence can be made to stand against gang influence, or when it should. We do not know more than a beginning about how to produce or to control aggressiveness, or how much of it is desirable at the various stages of development. We are only beginning to understand the influence of physical vigor upon personality functioning, or the effect of the various grades of intellect. We have only started investigations into the effect of cultural or community demands upon personal and social development; or the effect of routine demands, or of creative opportunity upon the unfolding or restricting of native capacity.

CAN PERSONALITY BE CHANGED?

Some Experimental Evidence. One of the current emphases in the study of personality is whether or not personality patterns change as individuals grow and develop; or, if change occurs, how much change can there be, what produces change and in what direction the change takes place. Again we see in the literature the old heredity-environment controversy; and as in other answers to this riddle, we see both nature and nurture at work.

One study of detailed life histories of twenty-five college-trained women⁸³⁸ would indicate that, although some personality traits in any given person change as the individual passes through certain

kinds of experiences, each personality preserves a central stability, a central core or focus or "center of gravity" which does not change. Some personalities are far more flexible than others, and change radically under radical changes of environment; others have a "granite-like" quality which withstands the impact even of the most radical changes of environment. But all personalities have a "center of gravity" which lends stability to the personality in the sense that it preserves a balance of traits within each personality. You are who you are, in other words, because of the unique quality and balance of your own particular personality.

Allport¹⁶ refers to this quality of organization in the personality when he says: "Psychologically considered the important fact about personality is its relatively enduring and unique organization." And again:

In addition to separateness and uniqueness a human being displays *psychological* individuality, an amazingly complex organization comprising his distinctive habits of thought and expression, his attitudes, traits and interests, and his own peculiar philosophy of life.¹⁶

In spite of this individuality of organization of personality which tends to endure throughout life, individual traits do change. Personality is more fluid, or subject to change through influence of the environment than is physique or even intelligence. The center of gravity, or core around which organization of traits takes place, is made up of a set of habits and attitudes which are essentially fixed early in life, but which may be added to and modified by the experience of the individual. The greater inflexibility of the older personality is probably due to a larger and more fixed core of personal habits and attitudes, which, like any habit, no matter how fixed, can be changed if sufficient emotional shock or continuous and strong enough pressure is brought to bear upon it.

However, it would be disastrous to jump quickly from this to the conclusion that we can, by enough nagging or punishment, change people, particularly adults, to suit our liking. The very stability of a central core of personality around which habits and attitudes achieve a working balance in any given personality proves to be the reason we cannot, or should not try to make over basic traits in any personality unless we have the help of highly trained specialists.* To change any basic trait without due regard for the other traits, habits, and attitudes which balance this trait, may

* Psychiatrists are the specialists who should be consulted if a basic change in any given personality seems required for a reasonably good working adjustment to life situations.

be to invite disaster through a serious disturbance in the total personality balance.

However, the training and forming of the personality of young children is quite another matter. There are many studies which show the influence of environment and training upon the formation of young personalities.* Apparently, while the core of stability or "the integration center," is still in the early stages of formation, much in the way of change or moulding is possible without disturbance to the general balance. Even so, it is not wise to force any child into a preconceived pattern. Even very young children seem to have a certain physiological and psychological constitution which can be forced only so far from its original pattern without producing stresses and strains which shatter the mechanism. Parents and teachers must learn to read signs which indicate that any given child is under undesirable strain. They must understand certain needs which must be met in every child before his growth can be smooth and healthy. They must recognize that they cannot force any child into a pattern for which he has no original talent or capacity, nor can they without disaster long deprive him of expressions and outlets which are necessary for normal growth.

An Example of How Change Can Be Effected. We have some help in what can be done to change personality reaction around the central core in the work of Jack⁵⁰² who studied the dominant behavior of individual children in groups. Jack's study, being one of the first to investigate experimental modification of personality reactions, is widely known. She selected a group of four-year-old children in the Iowa Child Welfare Research Laboratories, pairing

* Some children show marked variations of behavior from situation to situation or from time to time, whereas other children show more continuity.^{34, 284, 519}

Each baby exhibits a characteristic set of personality traits that change little with age. Personality differences are apparent at birth.⁸⁹⁰

"The understanding of any behavior in relation to the whole personality, then, depends upon an understanding of the child's status, as far as general outgoing social responses is concerned, then the range of behavior which he shows in different situations, dominant trends and dynamics of variation within the range. It may be repeated here that probably the range of behavior, dominant trends, and particular forms of variation shown by a given child depend upon the influence from both his immediate and his general cultural setting, interacting with the constitutional characteristics he himself brings to his culture.

"Prediction of a child's behavior in a new situation would depend upon accurate analysis of this situation, in relation to his own range of possibilities and the dynamics of response to variations in his subjective relation to situations, or their value for him. Seen geometrically, any one aspect of behavior or trait is a point of intersection of different lines of influence, and the interaction of these different influences with the situation determine the point at which this intersection occurs."⁷¹³

each child serially with ten others and observing on a carefully worked out scale how much each child dominated or was dominated by the others in the experimental situation. She discovered that the chief difference between the ascendant and the nonascendant child was a difference in the degree of self-confidence each felt in the given situation. Proceeding on this, Dr. Jack trained each nonascendant child in three different things which the other children did not know, such as assembling a mosaic of blocks or learning to know a story book. Armed with these skills the nonascendant children were again paired with each of the ten children of the original test situation. Only one child (and he had a serious speech defect) failed to increase his ascendancy score decidedly. These children did not always succeed in dominating originally strongly dominating children, but they greatly increased their attempts to do so. Their increase in attempts to dominate and their successes in doing so were greater in directing activities of other children than in maintaining property rights, which probably indicates that the training effects were specific.

Implications for Parents and Teachers. The indication from this study to parents and teachers is that children can, through specific training, be helped to gain self-confidence at least in some areas. This in turn can be utilized by the children to improve their leadership possibilities with other children. It is good schoolroom practice to encourage the less prominent children to be the best passers-of-papers or cleaner-up-ers. But most teachers use in such capacity only those children discovered to be already good in something. Much more than is ordinarily done can be done to train the less prominent and less skilled children in some special capacity which will be useful to the group and which will give them status in the group.

Page ⁷⁶³ corroborated Jack's study with young children, finding that ascendant behavior is subject to training, and that the effects of training are cumulative. Apparently a child, once finding some confidence with other children in one skill or ability, is encouraged to try others, and can be led on into more and more ascendant behavior. We see, then, that children are benefited socially when they learn specific skills which are useful in building self-confidence and prestige with other children. It is not wise as a playground teacher, for example, to force the shy and unskillful boy into a baseball game, where his lack of skill only makes a nuisance of him with the result that the group avoids him still further. Much better is a plan which takes the child off in private and teaches him to throw, catch, hit, and run until he can take a desired place in the

game. If he is hopeless as a ball player, he may become a good marble shooter, or swimmer and diver, or track man, or maybe a good singer in the glee club, or the accompanist for the glee club.

Jack's and Page's experiments show, too, that ascendance is not a static part of the personality, but that it varies from situation to situation. Children differ in leadership or dominance qualities at least somewhat in terms of the skills they possess in the natural world of childhood and which they acquired without special teaching with an eye to making them leaders. As a result, their leadership-followership position is ordinarily determined by the successful use of these "natural" skills measured in terms of the skills and interests of the particular group of children with whom they find themselves working or playing. If we accept the implications of these studies, we shall have to change the present *laissez faire* policy of most schools and playgrounds which assumes that children learn social lessons in free group play without teaching or supervision. The best democracy should function so as to "cash in" on all of its leadership. That probably means that no one person has all of the answers all of the time, but rather that, depending upon the situation and the activity, the leadership of any group should pass from person to person in order to give the person possessing the greatest skill or knowledge at the time and about the situation an opportunity to lead. Too many schools fall into the practice of letting one or two children run a given class for all activities and from year to year. Too little effort is expended in developing qualities and offering opportunities which will spread leadership.

Adult leadership in child play groups, however, must not be allowed to revert to the old idea of planning for the group all of its activities, and then "bossing" the children into the plan. It means, rather, preserving all of the advantages to children's growth of the present *laissez faire* policy which lets them work things out as far as possible for themselves, but having the adult leader take a somewhat more active interest in helping individual children to develop skills and qualities which will give them the necessary self-confidence to go ahead in a group.

How a Sense of Failure Can Be Modified. Another study of importance which shows the possibility of changing a personality reaction is that of Updegraff and Keister,¹⁰²² in which they demonstrated that children's reaction to failure can be changed favorably. They selected by means of special tests children who showed undesirable or immature reactions to failure. Immature responses were "giving up," requesting help more than half the time, destructive behavior, more than two rationalizations in the test situation,

exaggerated responses. These children were subjected to training periods in which (1) tasks presented were graded in difficulty so that the child's first experiences were successful and the later ones were within the possibility of success but required increasing effort and perseverance, and (2) tasks were so chosen that the child could see his progress and previous successes. Children so trained showed "remarkable improvement." They ceased to sulk and cry; interest and effort increased significantly; dependence on adults decreased; violently emotional behavior was eliminated.

This experiment followed the lines recommended by the best clinicians. Children who react badly to failure must be helped to see that crying, destruction, and other emotional behavior does not help. The only good way to show them this is not to punish them for such behavior, but rather to teach them how to get better results. This involves going back to the level of performance where success is possible, that is, "taking the child where he is," and teaching him through increasingly difficult successes how to persevere and win, "leading him where you want him to go." This is an especially effective technic for teaching constructive attack upon problems when children are young and their habits of approaching things are in the making.

Dominance or Submissiveness Is Less Educable as the Child Grows Older. There are indications that the older the child the less subject he is to training in such group technics. The reason for this may be that as the years go by and as he has increasing experience in being dominated by others, he accumulates increasing conviction that he is a nonascendant person, and an increasing feeling of lack of self-confidence. Then, too, as the years go by, competition for a place in the group becomes harder because the other children are accumulating keener and keener skills, not only in the sports or songs or other activities, but also in actual social awareness of what to expect from people and how to get along with them. It becomes increasingly difficult for the non-practiced child to catch up to the point where he can compete on favorable terms with the practiced children. Dominance or submission seem to be fairly fixed personality traits by the time the individual reaches young adulthood.

Like many traits, the dominance pattern varies with the situation, some people being dominant at home but thoroughly dominated at work, or vice versa. In general, adolescents from higher socio-economic levels are found to be more dominant than those from lower socio-economic levels. As with younger children, adolescents who tend toward dominant behavior have a larger repertory

of skills and abilities than do the nondominant; children who have exceptionally good bodily skills tend to be especially dominant.*

Thus, although the emotional disorganization and ego deflation attendant upon failure can be changed in young children (Updegraff and Keister), and although the dominance position in a group can also be changed in young children (Jack and Page), our evidence indicates that such changes are harder to effect in older children and young adults in whom the personality seems to be more structuralized† and the ego level more static.

Changes Can, However, Be Made Even at Adolescence.

Such changes are not hopeless for adolescents, however, as is indicated by experiments at the Institute for Juvenile Research in Chicago. There, maladjusted young people, or young people needing help to improve their relationships to their school or community groups were given special training in skills (bodily, creative, and social) in summer camps. Camps were used because in them young people have a twenty-four-hour exposure to the new situation and close personal contact with the counsellors who give them the training. This demonstrates what is probably the most effective possibility of making personality changes for older children. The results of this Chicago experiment indicate that adolescent and pre-adolescent children can be helped greatly to develop more effective reactions in their school and neighborhood situations. There seems some definite hope that these changes are effective as a start toward the same sort of accumulative improvement found by Page in the dominance studies with younger children. As we learn more about how to do it in schools, camps, settlements, and recreation centers we may find that much more in the way of character and personality education is possible even with older children and young adults than has generally been supposed.

Life Itself Sometimes Changes Personality through Crises.

Roberts and Fleming⁸³⁸ found that peripheral traits in personality, and occasionally even core traits, were sometimes changed by such life crises as loss of a beloved person, the birth of a child, the sharp

* Girls majoring in Physical Education at the University of Wisconsin center as a group near the 90 percentile of dominance in Bernreuter Personality scores. This seems to be general among young people especially skilled in body control. This probably does not mean that physical training produces dominance, but rather that, as Maslow⁷²³ found, the naturally dominant feel free and can express themselves well through bodily action. Doubtless there is an interaction between the two factors, the naturally (or early-acquired) dominant children being free to express themselves in bodily movement, getting practice, becoming more skillful, and more self-confident, and so on around the circle.

† A term rather generally used to indicate that the personality moves from the generalized, nebulous, vague reactions of infants toward a more definite form of reaction to specific stimuli. (See Lewin, Kurt.⁶²⁷)

impact of quick success, and other similar situations. We have a tendency to protect children from trouble, struggle and the tragedies which we know to be stunting to their growth. Yet struggle and adversity sometimes strengthen personality. Murphy says:

It seems to be a matter of common observation that some persons grow better—at least at times—under very adverse conditions, getting anything but what they ask for and rejected by those whom they want. Even more commonly it seems true that personality development along healthy lines is furthered by having a multitude of both friends and enemies, a loyal inner circle upon whom one can rely, and an outer world offering a stimulus to competition and often opposition. There are probably individual differences in this as in everything else in social behavior, and a crying need for research at this point is evident.⁷²³

The lesson to be learned from this is that overprotection of children may seriously stunt their personality growth. Only by facing and coping with difficult situations can children develop the strength with which to meet hard and unpleasant things. A life made up only of pleasure and ease cannot possibly develop poise in the face of trouble, a mature and well-balanced life philosophy. Until one has met difficulty successfully one cannot know the thrill of success after up-hill work. Too often progressive educators and superconscientious parents protect children from effort with the result that they cannot work, and from failure with the result that they have no sense of proportion about their own capacity for meeting failure. The Updegraff-Keister experiment gives us the key as to how to help children meet failure without being destroyed by it.

Effect of Maturation on Personality Development. Personality structure is, as we see, exceedingly complex. Many biological factors influence it, as do many environmental or life-experience factors. Another set of studies than those we have been discussing center around the factor of maturation, or inner growth as an influence in determining personality. Maturation and learning experiments in social skills, at least for young children, corroborate other maturation experiments. Among these, Jersild and Fite⁵¹⁷ studied two groups of children, one group who had attended nursery school for one or two years, the other group entering nursery school for the first time. This study was done in New York City where social experiences for preschool children are limited unless the children are in a nursery school. On a sample of the number of social contacts of each group at the beginning of the nursery school year studied, the experienced children spent almost twice as much of their time in social contacts as did the beginning group. By the end of the year, however, the groups were almost exactly equal in social contacts. These figures are in terms only of the number of

social contacts and do not give us light on the quality of the contacts.

Social Contacts Also Important in Modifying Personality.

Jersild and Fite's study would imply that in social learnings, as in motor and language learnings, maturation is probably a factor of greater importance than training. However, we must pause to speculate here as to whether we should trust maturation to produce social growth if children were not subjected to social experiences.

Children whose social contacts are too long delayed probably do not suffer too much when they make their initial contacts with children whose social skills are as inadequate as their own. There is no sense of stigma, and everybody can be awkward together. When, however, the initial contacts come at the age of strong awareness of other children's reactions (six or seven years up), children who find themselves novices in competition with skillful children are very likely to develop a sense of inferiority and a feeling of discouragement at ever being able to accomplish the necessary learnings. Their awkwardness and their mistakes stand out in sharp contrast to the smoothness of the other children. Instead of quickly progressing through the first unskillful stages, they often withdraw, tending to develop the "sour grapes" attitude that they "don't really like to be sociable anyway." Such children may retreat into the world of reading if their reading skills are good enough, or into solitary fantasies where they find themselves more successful than in the world of reality. (Recall Child A in Chapter 1.)

As in the learning of academics, it is probably not wise in our present cultural situation to delay the first stumblings in social learning beyond the age at which most children are acquiring ease. This is one reason why nursery school attendance is valuable to children of three to five years of age who do not have an opportunity to contact other children in fairly free relationships. It explains why experienced kindergarten and early elementary teachers should do everything possible to help shy or awkward or boisterous and aggressive children to make adequate social adjustments before the pattern of retreat or of unhappy social relationships becomes fixed, and before the social skills of the great mass of children progress too far toward perfection thus offering a more and more hopeless competition for the unskilled child. It explains why the many exclusive boarding schools fail to put polish on an awkward girl or boy, since in such schools the general level of social skill is often too high for any but very skillful children. Sororities and fraternities at college are successful as social polishers only if the young person being polished is far enough along in social development and the acquisition of social skills to benefit from the extra

practice and somewhat more advanced pattern. They fail whenever the awkwardness and lack of skill of the neophyte is too far below the general standard and, therefore, results only in hopelessness and increasing self-consciousness.

Effect of Cultural Pattern upon Social and Personality Development. How important the influence of cultural pattern is upon social and personality growth can be seen in the work of Mead,* who observed the development of character and personality in a number of primitive tribes. She reported that the development even of such so-called "sex traits" as greater aggressiveness on the part of the male and of submissiveness on the part of the female were apparently a product of the culture more than of the innate sexing. This is somewhat at variance with the work of certain biologists who have observed changes in aggressiveness or submissiveness with removal or implantation of testicular or of ovarian tissue in animals, the testicular tissue seeming to increase aggressiveness, the ovarian tissue seeming to increase submissiveness. Mead observed among Arapesh men a cooperativeness, gentleness, unaggressiveness, and solicitousness which were characteristic also of their women. On the other hand she observed among Mundugumur women the violent, aggressive, competitive, and hostile behavior characteristic of their men. Our idea of sex roles was reversed among the Tchambuli men and women. In this tribe the women were powerful and did the fishing and making of the most important articles of trade; the men engaged in artistic, nonutilitarian activities. Their women were practical and efficient, and adopted an attitude of tolerance toward the men, who were timid, sensitive, dependent, and graceful. Any person of either sex who differed from the established pattern of behavior for each sex in any of these tribes was considered a sexual deviant. Mead concluded that such standardized personality differences as are found between the sexes are the product of the cultural patterns and expectations in which the individual matures.

The important thing to consider in discussing the impact of the culture upon the development of the individual is not so much the exact pattern of behavior set by the group, but rather the relation between these patterns and the possible achievement of them by the individual. For example, as we saw in Chapter 5, the early days of American development placed great emphasis upon the large-framed, muscular and aggressive man. So fixed was this as the pattern for boys that hypersensitive boys who loved beauty and hated fighting were in the unhappy position of complete inability to achieve status in the eyes of the group and as a result were

unable to marry any but masterful women who found fulfillment in the control of a mate instead of in the feminine pattern of leaning on one. As a result such a boy often lived a miserable life. In the eighteenth century, however, a "gentleman" could dress in elaborate velvets and laces and sniff his snuff with a dainty curve of the little finger. These patterns vary from period to period in marked form. But they also exist within any period, differing from family to family.

Woe betide the child if he does not 'act like a two-year-old' (with proper enthusiasm for large-muscle and aggressive activities), or like a Middletowner, or like a son of Eli, or like a member of the Harriman family. Presumably the task of the educator is to become discriminating regarding the times when normative pressure is useful to a growing organism, as compared with the times it arouses conflict and distorted social patterns⁷²³

In our culture, both the personal-value, conflict-with-reality emphasis, and the ego-social ambivalence appear as primary determinants of the behavior of small children, and are probably responsible for the deep demand for the attention of adults and the early prominence of egocentric behavior. It is surely superfluous to point out that any planning for the social education of children must be done in the light of these considerations: first, the intimate interdependence of any one aspect of personality and all the rest of the person; second, the shaping of the boundaries of the personality, both its habits and the deepest emotional mechanisms, by the culture in which it grows, within the limits of the organism; third, the flexible response of young individuals to different situations within a culture, in terms of the meaning of those situations to them.⁷²⁴

Personality a Product of the Interplay of Factors. In spite of the emphasis, then, which some studies place upon maturation as a dominant factor in personality and social development it seems evident, as we have seen, that learning factors are of great importance, too. Personality and social development, like every type of development, is dependent upon an interplay between the natural "type" or original endowment of the person, and the learning experiences he has. Let us take, for example, the social development of a fifteen-months-old child who has a special language capacity and great interest in people, but who cannot yet walk. His social behavior will be quite different from that of the fifteen-months-old child who can run about freely and, therefore, gives much attention to things, but who cannot talk at all, and therefore gets little from language contacts with people. The ten-year-old boy who has the average boy's longings to be with a gang will get quite different things from the gang in the way of personality development if he is large physically and skillful in coordinations than

he will if he is undersize physically. The sexually mature thirteen-year-old girl who is mentally keen will have quite a different set of social experiences and will react to them quite differently than will the sexually mature girl of thirteen who is feeble-minded but pretty.

We have, too, a good deal of evidence that the personality traits of children sometimes change markedly when they move from one neighborhood to another where school and gang contacts are markedly different. Apparently the impact of the gang and the neighborhood upon the developing personality is sufficient to modify behavior. For example, children who are moved from a group where they are young and fairly inadequate in contrast to the contact group sometimes assume positions of leadership when placed in groups as young or younger than they are. This does not imply that the child is changed innately, but rather that what is called out of him in the way of behavior is changed.

SOME STAGES OR PATTERNS OF SOCIAL GROWTH

Let us turn now to what studies show to be some of the stages or patterns by which children in our culture grow or develop, recalling always that these stages are only in part the product of innate inner growth forces; they are also the product of the impact of our particular American culture upon the average American child.²⁵³ We can understand children better as we meet them in school or informal education if we know something about the steps by which they develop their sense-of-self as contrasted with things or with the total social group; if we learn something about the development of their individuality as expressed by their attempts to stand as individuals against the impact of the social group, namely, about their aggressiveness or their conflict with the social group; and if we learn something about the manner in which they develop cooperativeness with the social group, namely, about cooperation, friendship, sympathy, respect for property rights, and other so-called "moral behavior."

Individual Differences Must Not Be Forgotten. In considering these stages of development we must not lose sight of the vast individual differences which occur in personality reaction to situations. Some children are naturally "in-going" or thoughtful, imaginative, and daydreamy; others are naturally "outgoing," aggressive in attack upon things and people, easily stimulated to action by objects and situations outside of themselves. Some cling to the protected area of dependence upon adults; others seek every opportunity to do things for themselves. One child, kept in a limited educational environment will, nevertheless, find things to do; an

other, even in a rich educational environment, will seem to miss most of the opportunities. One child, faced with a new baby in the family, will fight desperately for his place in the center of the household; another child will welcome the freedom to do as he pleases so long as he does not get in the way. One child, placed in school and faced with reading and number work, seizes upon this as a way to exercise his inner capacities and to win status; another cannot give up the world of vigorous physical play, finding the challenge of the intellectual world colorless indeed; still another will cling to his world of phantasy, managing to escape the insistence of the school-room world. Prolonged pain may increase the sympathy of one child, may make another still more egocentric.

Children differ, too, in the way they express themselves. One child, delighted with the touch of fur at a few months, may touch, shiver, crow his delight, look around at the adults to share his pleasure with him; another child may touch, touch again, and continue to explore the new sensation, absorbed in the reaction itself and giving little open expression to his emotion. Expressions of sympathy differ widely even in the preschool years. One child may promptly cry himself when he sees another cry; another child may attempt to smother the sufferer with hugs and kisses, only adding to the confusion and unhappiness of the victim; still another may run for adult help; while still another may start an intelligent probing to locate the cause of the difficulty. Even quite young children differ in the way they fight; some snatch and hit, others simply cry in impotent rage; a few use subtle methods of distraction and persuasion; an occasional child will drop the matter and wait for a more opportune moment for revenge.

Then, too, fundamental urges expressed at one level of development may prove a source of constant discipline, whereas expression of the same urge at another level may prove a source of great satisfaction. For example, keenly alert and inquisitive children who constantly explore the environment and exhaust the experimental possibilities of everything which comes to hand, are the worst type of nuisance in their preschool years, and are likely to receive constant discipline and restriction. This same faculty, properly guided and properly understood, may win steady acclaim in school because of the child's eagerness to learn, his ingenuity and resourcefulness in exploring the world about him. In adulthood, his refusal to drop a thing until he has explored its every possibility may make him a famous inventor or explorer.

How the Sense of Self Develops. Much of a child's development of selfhood, of standards of behavior and of his patterns of feeling grow through his "absorbing" of the "atmosphere" around

him.* Just how this takes place is a matter subject to question, but we know that much of the process is due to identification of the child's self with the people who are close to him.

Tiny babies do not seem to know where their own bodies leave off and the crib or toy begins. We see them biting a toe and looking puzzled because it "feels," whereas biting a rattle produces feeling only in tongue or mouth and in the fingers which hold it. In the same way, tiny babies seem to draw no clear line between themselves as ego structures or persons and the people around them. They cannot mark off where their own ego stops and that of someone else begins. Therefore, the influence of other people as closely identified with themselves as the mother or other close attendants is especially marked. What mother is, he himself is. What mother says is right; he has no judgment apart from hers. His mother, the source of food and protection, the source of knowledge, and his alter-ego is an object of supreme interest and influence in the life of the infant. She *is* his ego, the first extension of himself.^{377†} She

... is the chief object to which growing devotion can be given, a center of primitive intense affection. The need for affection and the need for someone upon whom to bestow affection are both realized in this unique object in the environment. It is largely through her that the child learns *what a person is* as contrasted with the inanimate; learns about spontaneity or capriciousness; learns about valuation through her valuation of what he does.⁷²³

Having identified himself with his mother or nurse the preschool child's circle of interest spreads to include his father, other members of his family, and friends who come frequently into his experience. What they think and feel and do; that he must think and feel and do. As Piaget⁷⁸⁷ points out, even when the child is three or four years old he assumes that others see the world as he does. One of the chief lessons learned from contact with other children in nursery school or kindergarten or in free play is the discovery of the fact that other children have mothers and fathers, too, that they think and feel, too; but that they think and feel and live as individuals apart from you, as separate entities, the same in many ways as you, but also different in many ways. It is the young child's tendency to identify himself with the world about him which makes him love stories of animals who keep house and think thoughts and have conversations, just as he does.

In the sense that he identifies himself with his family in the early

* Shirley, M. M.,⁸⁹⁰ after a careful study of babies, says that babies manifest personality traits which are in harmony with those of their families.

† For further material on the development of the ego see Chapter 14.

years of his life he is helpless against their influence. He has too little awareness of himself as a person, too little experience separate from theirs to question their opinions or to have a judgment of his own. He may, and usually does, fight hard for what he wants; but he has no self-criticism apart from their judgment of him, no sense of rightness and wrongness apart from theirs.*

Even his language reflects his absorption of the personal ideas and standards around him. Such words as "good," "bad," "pretty," "ugly," "funny," have for the young child only meanings reflected from other people. "Good" means that you comply with routines, tastes and standards of the people around you. "Bad" means that you do not so comply, or that you hurt others or interfere with others. That you might differ from these ideas, having any ideas of your own (any separate ego), is not possible to the nebulous self of a very young child.

Thus we can see how much of the child's self-hood is created by the people around him. This fact is important to people who adopt children. Since most adults have not developed flexibility as part of the core of their own personalities, they do not adapt readily to intimate family living with children who reflect standards and attitudes substantially different from their own. Older children have a self-hood which is the product of the people and experiences they have lived with. Few adoptions of children over ten years of age prove to be a happy experience for both the children and the foster parents. Success in such adoptions requires unusual adaptability on the part of both child and parents and a maximum of similarity in tastes and standards. For smooth family living foster parents should either adopt very young children or assure themselves that the tastes and standards of an older child's previous home or homes are compatible with their own.

As he enters school the child encounters another, less close source of identification in his teacher. In so far as she follows the pattern of his home he has no reason to question the universality of the rights and wrongs, the feelings and prejudices, and the actions of his world. In so far as she differs from his home he must face decision, and with it growing self-judgment. His ego, then, is forced to withdraw from the universally evident; is compelled to set itself up as judge. Thus he more clearly defines himself, marks out the beginnings of self-criticism, begins to question the universal rightness of the home pattern, and probably begins to reject certain opinions of his parents. "But teacher says it is so-and-so," or "John's father says it is done this way" are familiar to the ears of parents of six year olds.

* For more about the development of the conscience see page 486.

By adolescence the sense of clear-cut individuality, of self-criticism, or independent capacity for judgment is usually at a freshly acquired peak. Therefore, the tendency to question every one else's judgment, especially the judgment of the earliest patterns (the parents) is great. The new-found self-independence overweighs for a time the feeling of identification with any group other than the close feeling of unity with other adolescents. The natural outcome is unreasonable rejection of any judgment but that of one's peers, a storming against adult authority, a railing against old-fashioned conservatism. This sharp insistence upon the autonomy of one's own judgment may be a necessary part of the bolstering which the adolescent needs before he can break away at all from his childlike dependence upon the judgment of others. Only when he has convinced himself that he is no longer afraid, can he have the courage and clear-headedness to weigh intelligently his own judgment against the wisdom of the race, the church, or his parents.

Development of the Sense of Failure or Success: an Important Part of the Sense of Self. Sound judgment about one's own successes or failures is an essential part of a healthy adult personality. Little children have none of it. A baby is delighted with himself when others are delighted with him. He is crestfallen when scolded. He tends to do whatever will bring the reward of approval and tends to avoid anything which results in disapproval. He has no sense of success or failure within himself but will behave in any manner which will please the adult closest to him. By three or four years of age, however, children have set up a sufficient standard of what is expected of them to use it as a gage of success or failure. They have also discovered a sense of success in controlling their own bodies or the world of things and people about them, and have developed a sense of frustration or failure when they fail in these controls. They give evidences of these feelings of success and failure since, by the time they are three years old, success will cause them to change from passive to active behavior, whereas failure makes them appear dejected. A nursery school child who has just succeeded in going down the slide in the school yard for the first time will throw back his head to crow with delight, then burst into activity, usually repeating the stunt, though sometimes simply jumping up and down or running around excitedly. Failure to keep one's bed dry usually produces a "deflated" dejection, although such a failure may drive a certain type of child to noisy behavior as a cover-up.

The child must feel a challenge, however, before he reacts to success or failure. Tasks which are too simple in the mind of a child do not raise his ego feelings or reflect in his behavior when

he succeeds, largely, it seems, because he considers them "baby stuff" and not worthy of pride. Similarly, tasks which are too far beyond him do not, as a rule, deflate him when he fails because he does not expect himself to succeed. It is, therefore, important that parents and teachers set a level of expectation for each child which will be within possible accomplishment, yet which will challenge effort. To expect too much may drive sensitive children either to a frenzy of effort or to sodden despair. Luckily, the average child, being not too sensitive, does not gear his aspiration level too far beyond reasonable effort, and develops an indifference to impossible adult standards, thus becoming "behavior problems" in the minds of the parents or teachers who set the impossible standard.

In adult life one's effectiveness lies in how well one accomplishes what one is best able to do. Society expects the best we have. Therefore, Society's measurement of success is couched in terms of what people do in relation to what they are able to do. Happiness is determined in an important way by whether one feels oneself successful or a failure. Many people fail either because they aspire to things they cannot do or because they do not aspire to do what they are able to do. The relationship between what one aspires to do, what one does, and how one feels about it determines whether or not one is successful and happy.³³⁶ Although everyone differs in his aspiration level for different things (thinking it important to be good at business but feeling no urge to succeed in family life, for example), the general level of aspiration in relation to general level of accomplishment can be observed. Some people carry an aspiration level in general which either keeps them constantly failing in their own eyes, or which makes "impractical idealists" of them. Other people "have their feet on the ground," keeping their aspiration level constantly checked against their accomplishments, yet far enough in advance of accomplishment to keep progressing in accomplishment. Others carry very low aspiration levels, "lacking ambition," and placidly "getting nowhere."

People react differently when they realize that their accomplishment has fallen short of their aspiration. Some try to do better; some become discouraged and give up; some dream of success, or make excuses or use other forms of psychological escape; some combine these.⁴⁰¹

The best reaction to failure to reach one's goal is either to do better, or, if the goal is set so high that good effort cannot reach it, the goal should be changed.

In early childhood the aspiration level is easily influenced, and the habit of expecting nothing at all, or too much, or just enough of oneself is in the making. Indications from current studies are

that by late adolescence the relationship between one's goal ambitions and the tempo of one's effort to achieve them is fairly well set. Frank's study³³⁶ seems quite definite in indicating that this relationship between what one expects of oneself and what one does is set as a relatively permanent personality characteristic fairly early in life.

We should teach children to evaluate themselves and their accomplishments in terms of goals which are high enough to stimulate constant growth, yet low enough to permit success with reasonable effort. By so doing we help them to lay a basic corner stone for mental health. Circumstance, however, helps to mould this aspiration level, even when parents or teachers expect the right amount from each child. One dull child (80 IQ) whose parents were thoroughly aware of his ability and who, therefore, were very conscientious about not making him feel that they expected more than he could do, nevertheless went to pieces from a sense of failure in schoolwork. The key to his situation was four brothers and sisters with IQ's ranging from 120 to 150, whose academic accomplishments were so obvious that, even though the entire family conspired to keep such accomplishment in the background, the dull child knew he was not up to the family pattern. One of the strong arguments in favor of homogeneous groupings in schools is to keep dull children from an aspiration level set by inevitable competition with brighter children, and which, therefore, is too high for them. Similarly, homogeneous groupings keep brighter children from setting an aspiration level which is too low for their own good or the good of society. Competition of bright children with bright children as a rule keeps aspiration levels for these children where they should be. Homogeneous groupings, of course, set up competition between groups, setting the "bright" group off from the "dumb" group. However, most administrators of large school systems feel that homogeneous groupings promote, rather than hinder, a sound sense of one's own growth.

The Effect of Competition upon Aspiration and Success.

Competition with other children which sets aspiration levels for individual children in terms of the accomplishments of other children near them, seems a unique product of our Western culture, as well as of certain European and Asiatic cultures. Studies of Hopi Indian children³⁵ show that they are not concerned about getting ahead as our children are. When placed in a situation where they are expected to be motivated by being first, or by being ahead of someone else, they fail the teacher miserably because self-depreciation is good form and obvious desire to appear better than other people is bad form among the Hopi. In contrast to this the Lynds⁴⁴

found in Middletown that ambition outran ability in a considerable proportion of a midwestern American town's population. There is a definite pattern in our culture by which parents and teachers get as much school work out of children as possible. The difference between progressive education and the older education is not that we try to get less work out of the children, but that progressive education tries to do it so pleasantly that the children will learn to like getting as much as possible out of themselves not only in school but in life afterward.

Granted, however, that our objective in education is to teach children to expect great things of themselves, or at least, to expect the best possible of themselves, we might turn to some of the current studies on how best to do this.

Effect of Praise and Blame. Early studies done in 1916 and 1925^{383, 493} indicated that reproof of children motivates them to learn more effectively than praise does. This was in line with the "spare the rod and spoil the child" philosophy current in formal education and in parental attitudes of the 1890's and early 1900's. In other studies^{133, 606, 1037} done at the time it was found, however, that the degree of effectiveness of reproof depends upon the kind used. Reproof administered in private, for example, was more effective than reproof administered in public. Ridicule and sarcasm, particularly when used in public, resulted in a sharp drop in learning. One study on high school seniors¹³³ in 1928 showed that sarcasm used in public caused 6.2 per cent of the students to do better, 29 per cent to remain the same, but 64.5 per cent to do worse. Sarcasm in private caused 44.5 per cent to do better, 14.8 per cent to remain the same, and 40.7 per cent to do worse. Sarcasm directed at others caused 16.2 per cent of those who heard it to do better, 65.9 per cent to remain the same, and 17.9 per cent to do worse. Another study¹³⁴ by the same investigator using junior high school pupils as well as college students found that public reprimand (not sarcasm) caused 40 per cent to do better, 46 per cent to do worse; private reprimand caused 83 per cent to do better, 7 per cent to do worse. Public sarcasm caused 10 per cent to do better, but 77 per cent to do worse; private sarcasm caused 18 per cent to do better, 65 per cent to do worse. Public ridicule caused 7 per cent to do better, 69 per cent to do worse; private ridicule improved 21 per cent, damaged 64 per cent. Public commendation, however, caused 91 per cent to do better, and only 1 per cent to do worse. Apparently, even public praise can upset some children emotionally.

Later studies^{1002a} have moulded our present philosophy, however. The findings of the earlier studies which indicated that certain forms of reproof disturbed children badly and that commendation,

particularly in public, was on the whole an effective means of motivating learning, led to more careful work on the effects of praise and blame. The well established Law of Effect was formulated by Thorndike, and has deeply influenced home and school practice with children. According to this law of learning, people learn faster and retain longer anything which is pleasant; they avoid or soon forget anything which is annoying. For some years the philosophy governing child training was, "Always praise a child to get him to learn; do not punish or reprimand him"; "Always say do; never say don't." Child psychologists adopted this principle widely. Progressive parents and teachers felt that they must never reprimand a child, but must always use a "positive" approach.

Still more current studies^{199, 326, 1002a} reveal that, although praise is in the long run more effective than reproof, a judicious combination of both is better than either used alone. Either used alone is, in turn, better than ignoring the child's effort. We might grade the effectiveness of adult procedure with children somewhat as follows:

Ridicule or sarcasm (especially in public)—handicaps learning.

Ignoring child's effort—discouraging, or, at best, ineffectual.

Reproof (particularly if administered in private) somewhat effective.

Praise (for genuine effort)—somewhat more effective.

Praise for good effort combined with reproof (especially when accompanied by constructive suggestion)—most effective of all methods.

A judicious adjustment of any method to individual children—absolutely necessary.

Effect of Knowledge of Results of Effort. One further principle of motivation has been established beyond doubt. There is no disagreement among a number of studies* that children learn better when they know what the result of their work is than when they are left in doubt. This should speak loudly to teachers who throw children's papers in the waste basket and to parents who do not trouble to follow through on tasks they ask children to do. We should not leave children who are learning a new skill or job in doubt as to whether the task they have done is satisfactory or unsatisfactory.

Thus our many studies in child learning help us to accomplish a goal held to be important by our Western culture. We know how to make children achieve at an optimal rate of speed. Rewards, reproofs, praise, punishment, and competition all serve to force the child into the adult-conceived pattern of achievement. School

* See Bibliography.^{114, 198, 314, 769, 981}

marks, gold stars, honor societies all help push him along. These methods are effective, and they are scientifically proved to be effective in producing results. However, whether we should approve philosophically of rewards and punishments and competition as desirable methods to use in developing the initiative and leadership necessary for maintaining a Democracy can be seriously questioned.

QUESTIONS FOR CLASS STUDY

I. Observe the personality of some child, preferably one whom you know fairly well. List his outstanding traits, both desirable and undesirable. What traits need further development? Which ones need curbing? What would you regard as this child's "center of gravity" traits; which ones are peripheral? Should this have anything to do with your recommendations for change?

II. Visit a playground or other free play situation. Which children lead the group? Which are never leaders? Does leadership change from activity to activity? What personal qualities or skills made the leaders successful in leadership? Could you make suggestions for developing the nonleaders? Do you notice changes in position of leadership or followership as the group changes in personnel?

III. Find some child who hangs around the fringes of a baseball, marble, or other skill game. Take him (or her) aside for a few short periods of quiet practice in this skill. The practices should be spaced over several days. Do you see a change in his ascendant behavior as he returns to the group?

IV. Do you recall from your own childhood a change in your own outlook on life when you changed from failure to success in schoolwork, or in games, or in helping with household chores, etc.? Can you remember other dramatic incidents which changed basic habits and attitudes for you? Did you make any basic changes in yourself as you came into the period of "self-awareness" in adolescence? How hard did you find it to reeducate a habit of years? How did you finally succeed in doing so?

V. Set up, if possible, a brief learning experiment (learning accurate throwing of a dart, learning some game, or academic skill, etc.). Study the effect of praise, of blame, and of praise-blame-instructions-for-improvement combination.

VI. Look up current literature (since 1945) for material on projective methods, both as they are used in research and as they are used in therapeutic work with children. Present your findings to the class.

VII. Look up personality development in adolescence in the current literature (since 1945) and present your findings to the class.

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13. SOCIAL AND PERSONALITY DEVELOPMENT; CONFLICT AND AGGRESSION; COOPERATION AND FRIENDSHIP

DEVELOPMENT OF INDIVIDUALITY AS EXPRESSED IN CONFLICT AND AGGRESSION

A number of studies of children's social behavior center around observations of children's aggressiveness. This is fairly easy to understand, since it is when the child fights or teases, or disobeys or is jealous that he is troublesome. "The wheel that squeaks gets the grease" seems true here, since troublesome behavior notoriously gets more attention, even among research workers, than does cooperative behavior or just ordinary routine behavior.

Definitions of Aggressiveness Differ. Murphy and associates define aggressiveness as "all forms of insistent response to obstacles socially imposed between children and their goals." This indicates that children are not aggressive just for the sake of aggressiveness, but rather that aggressive behavior appears only when something happens to keep a child from achieving some goal. The use of the words "socially imposed" suggests that the thwarting must be imposed by people, either adults or children. Other psychologists usually include under aggressive behavior that which results when a child displays anger or other aggressive behavior if crossed by things as well as if crossed by people, e.g., if the child cannot succeed in getting the pieces of a puzzle together and he throws it on the floor as a consequence. Caille,¹⁷⁵ in a study of 1002 observations of children's behavior in free play, defines resistant behavior as failure to obey commands, to relinquish toys or materials, or to discontinue activity that some one else tries to interrupt, responding with retaliative measures to pushing or hitting or other physical stimuli; crying or saying, "No"; or any situation in which the child himself proves the stimulus for resistance or acquiescence.

The various studies of aggressive behavior are based sometimes upon one of these definitions, sometimes upon another. We shall

assume that aggressive behavior includes all of the phases of behavior defined above.

Theories Explaining What Causes Aggressiveness. There are several different theories used in explaining aggressiveness in children. One is that displays of anger or jealousy or disobedience are primarily attention-getters. Since such unsocial or asocial means of getting notice are considered bad, the method of dealing with such displays is to repress or to ignore them, and to teach the child better means of gaining attention.

Another theory about aggression is that it is one of the basic instincts and must have a way of expressing itself. When it appears, then, it must not be repressed, since repression of basic impulses is dangerous, but it must be redirected. The idea is, for example, that one should not repress anger; one should redirect it. "One must not fight against other people; one must fight with and for them or for some worthy cause." In this general idea of aggressiveness we see an implication that certain aggressions are necessary as a balance in personality development. The baby, completely dominated by the adult, must develop and display aggressive behavior in order to nourish his growing ego, so that he may become a person apart from the persons who absorb him. Therefore, aggressiveness is welcomed by proponents of this school as a healthy sign of a developing personality. In this school of thinking it should not be repressed, but rather should be carefully nourished. The less sane advocates of this school have produced some extremely disagreeable children. The saner advocates agree that aggressiveness must not be allowed to run rampant, but must be disciplined into socially acceptable channels, "canalized," in other words into socially acceptable patterns of behavior.

One branch of the "express-it-rather-than-repress-it" school assumes that aggression is called out only when the child is frustrated or interfered with. Some of the advocates of this school imply that situations which cross the child should be avoided; in other words, that the child must never be crossed. Others imply that such situations should and must be allowed to occur, since all of life disciplines us and the child must learn early how to adapt himself in a socially acceptable manner to thwarting.

Another way of regarding this "well-of-aggression-in-the-personality-which-must-be-expressed" is to regard as imperative the necessity for planned outlets for aggressiveness. The idea is that if the child does not express his aggressiveness he will turn it in upon himself, developing into a masochist, a person who enjoys inflicting pain upon himself or having it inflicted on him by others. As a substitute for hitting people, then, we should

give him opportunities for rough play, a punching bag to hit, nails to "swat," and the like. At the present writing this method of providing opportunities for the expression of aggressions offers a happy compromise between the "children-should-be-seen-and-not-heard" school and the "let-them-do-as-they-please" school.

Research Findings. Research on this subject has given us some helpful insights to guide our treatment of the overaggressive behavior which so often troubles parents and teachers. One group of investigators found aggressiveness to be primarily an expression of such physical factors as fatigue or hunger, or of such psychological factors as wanting something which is forbidden, or which is too hard to get. They recommend that when a child behaves badly, we should find out what is the matter with him or what unreasonable circumstance has occurred to rouse him. If we follow the lead given to us by these researches we shall learn to look for some physical ailment such as hunger or impending illness as an explanation of tantrums. Or we would try to find out how much the child was aggravated by circumstances before we punish him as "being a bad child." If he is behaving badly because he wants something he cannot reasonably have, he must be helped to develop desires for things he can have and to give up other desires.

Another group of investigators* has emphasized the inner or instinctive reactions of the child. Their work has called to our attention the emotional or instinctive forces which may drive a child to explode whether the thwarting circumstance seems to the observer to warrant his explosion or not. They have helped us particularly in cases where children seem to explode with what appears to the adult a totally inadequate aggravating cause. Hidden emotional blockings or conflicts often drive children to what appears on the surface as quite unreasonable or inexplicable behavior. Punishment of such behavior is harmful because it only further frustrates the child and adds to his internal turmoil. Nothing but understanding and a straightening out of inner conflicts and emotional longings can correct aggressive behavior which stems from such causes.

Murphy has found that children who are more aggressive tend also to be more sympathetic toward other children. Hattwick found that there is a high correlation between aggressiveness and feelings of insecurity, being especially acute in children who come from homes where they feel rejected by their parents. Caille¹⁷⁵ found that children who are most resistant to adults are also in general the children who are most acquiescent to adults.

* The psychoanalysts. See Freud,^{347, 352} Isaacs,⁵⁰¹ Klein,⁵⁹⁰ Mahler,⁵⁸⁶

These are all indications of the relationship between inner passivity or repression and aggressiveness, and between inner longings and explosive behavior.

Caille¹⁷⁵ found that even though children are as aggressive with adults as with children, they actually resist other children more frequently than they do adults. In spite of the popular idea that boys are more resistant than girls, Caille found only a slightly (even this was statistically unreliable) higher resistance among boys, at least of preschool age. Levy and Tulchin⁶²⁵ found no sex difference in negativism. Jersild and Markey⁶³¹ and Dawe²⁵⁶ both found, however, a corroboration of the lay belief that boys are more aggressive than girls. They found, even in the preschool age, that boys fight somewhat more than girls do, and that, in general, boys fight more with boys, girls with girls than do boys fight with girls and vice versa. This is corroborated by Goodenough,³⁹¹ who found boys more resistant than girls at every preschool age. These differences in findings may be explained by the fact that Levy and Tulchin drew their subjects from lower occupational classes of children, whereas Goodenough, Jersild, and Dawe studied more privileged children. Boys in the more privileged classes are more often spoiled than girls. This probably explains the seeming inconsistency in the findings about sex differences in negativism.

Most of the studies agree that negativism or resistant behavior is a behavior pattern which is subject to modification by training unless the resistance is the consequence of inner emotional conflicts or longings. In this case only removal of the conflicts or provision for fulfilling the longings will change the behavior.

Two Types of Aggression. We may be able to differentiate between the behavior which we should try to modify by discipline and that which we must correct from within if we recognize two forms of aggression in children: (1) that displayed by children because of self-confidence, and (2) that which arises because of feelings of insecurity, these latter children behaving aggressively because they feel unwanted and must strike back at the world, or because they must dominate younger children or any situation possible in order to restore the balance of self-respect, or because they carry a deep sense of frustration which explodes beyond their control.

Children who display the former kind of aggression can be expected to develop mature patterns of behavior in dealings with adults since they are capable of acting with discrimination, obeying when it seems wise to do so, disobeying only when they feel they must to gain their point. Children who display the type

of aggressiveness due to feelings of insecurity act from blind inner necessity and, therefore, do not develop the discriminations which make more mature behavior possible unless they can be made to feel more secure.

Aggressive Behavior Normal and Desirable in Children.

Most writers in the field of child development have concluded that in our culture, in the United States at least, a certain amount of aggressive behavior against both adults and children is a normal part of early social development, and has a definite place in the acquisition of independence in the adolescent years. Most nursery school teachers and observers of young children feel that a child who never fights is a child who lacks normally active contacts with other children or who is emotionally immature or maladjusted. Judging whether or not the child is normally mature and normally self-confident depends upon his age and developmental level, upon the group with which he plays or works in school, and upon the particular situation in which he does his fighting or the losing of his temper. The type of punching and pushing which a four year old uses in defense of his toys would not, for example, be the type we should expect from a nine year old. In a group of mild children, easily dominated, a normally aggressive child would quarrel or explode seldom; whereas, in a more aggressive group he would do so frequently.

Development of Aggressive Behavior.* We saw in Chapter III that anger is roused by any restriction of the numerous and vigorous random movements with which normal infants occupy most of their waking time. If a young infant is held gently so that he cannot move freely, the usual result will be an outburst of rage. He will strike out with fists and feet, will struggle to free himself and will scream as loudly as possible. One or two other simple stimuli, such as a puff of air against his cheek or holding his nose for an instant to cut off his breath, will precipitate the same type of primitive behavior. Probably no one would question the propriety of an infant who resented having his physical freedom hampered; one would not consider him childish if he expressed his anger directly and forcibly. Most persons, however, would look askance at an adult who broke into a fit of temper because some one had pushed against him in a subway or theater rush. In the same way we see as immature the behavior of anyone more than two or three years old who tries to take by force anything he sees that he wants, or who bursts out in rage simply because he cannot have what he wants at the moment.

* The pattern of development of anger behavior was traced in Chapter 3 and should be reviewed in this connection.

Hurling words is, as we saw in Chapter 3, only one step in advance over hurling objects when angry; and pouting or withdrawing from a game as an expression of anger is still a childish form.

People dealing with *children of school age* need to understand the preschool levels of aggressiveness since many children of school age are still in the preschool level in this phase of their development. It helps a great deal in dealing with such children to understand the earlier phases of this development in order to be able to lead the child from one step to the next and thus into more mature patterns of behavior. In the same way, people dealing with adolescents should understand the elementary school levels of anger behavior.

Our Culture Demands Certain Forms of Aggressive Behavior. One must learn in our competitive culture to "stand up for one's rights," not "let other people run over one." Fathers, particularly, urge sons to "fight your own battles." These lessons are being learned rapidly in the school years, but not without confusion to adult and child alike. We expect children to become increasingly free of dependence upon adults, to grow into a capacity to "take it" without whimpering, to move forward in spite of obstacles (to fight aggressively for success). Yet, when they refuse to knuckle under when punished, we regard it as stubbornness, forgetting that this same trait is "courage" on the playground. When they fight by any method they can command to win their own way, we are worried over disobedience. The problem for adults is to understand which traits to encourage and when. The problem for children is to learn what to fight for, when to fight for it, against whom, and by what methods.

Learning Approved Methods for Fighting. General progress in fighting according to socially approved technics means moving along the scale from hurting, snatching at the cost of others, carrying a chip on one's shoulder, toward the type of aggression so highly approved in our present society, namely, having enough self-confidence to get what one wants (so long as this does not deprive others), participating freely and in the capacity of leadership in groups, gaining professional or vocational prominence, and fighting to defend oneself or others. Children characteristically suffer confusion because they are urged to hit back if struck, but are themselves hit (spanked) for hitting when angry or when fighting for something they want. They are urged to "get ahead," but severely disciplined if they cheat to do it; they are constantly urged to beat others in grades at school and in sports, but are promptly checked if they boast of their own

successes, or even if they sacrifice other values to achieve them. Even in beating other children to the honor role, they are disciplined if they try to keep other children from getting there ahead of them. Learning to "fight right," meaning "within the rules" is one of the most complicated learnings our culture imposes upon children.

Gradually, however, they do learn the rules; but much experience and many years of time are required. Children who lack experience between three and six are likely to enter school on the three-year level of hitting and snatching for material possessions. It will not take most such children three years to "catch up," but it will take a little time and a good deal of patience on the part of the teacher.

Patterns of Aggressive Behavior Determined by Cultural Impacts. Whatever these patterns of growth and the ages at which they appear in our culture, we must realize that both patterns and age of appearance are not the product of inner development *per se*, but are the result of the impact of our culture upon the child. We have two- to three-year-old negativism because we put children of this age under such pressures as eating for themselves, toileting regularly and with increasing independence, learning not to snatch, or throw, or cry when thwarted. We get "ten-year delinquency" at the stage where we emphasize a next step in respect for property rights and further learnings in self-control, promptness, consideration for others, and "socialized" behavior with peers. In our culture, for example, taking other people's things is a laughable baby trick at two years, a mistake at four or five, but a crime at ten years. In some social cultures taking everything one can is socially approved behavior so long as one does not get caught. Society must, of course, impose restrictions upon primitive behavior. We are not pleading a case for the removal of restrictions. But a good teacher or parent must understand that every child at some stage in this interplay between his impulses and society's restrictions will break down into "naughty" behavior. Our task is to know when such behavior is simply evidence of an as-yet-incomplete learning, and when such behavior is evidence of confused attitudes which need basic retraining.

By adolescence most children have pretty well mastered the knowledge of what to fight for, when, against whom, and by what methods. The adolescent problem is to apply this knowledge to himself. He still has desire, as do many adults, to fight for the wrong kind of recognition or possessions; he still suffers from immaturity in self-control, has childish habits to overcome.

DEVELOPMENT OF COOPERATION AND FRIENDSHIP IN EARLY CHILDHOOD AND PREADOLESCENCE

Three Kinds of Personal Relationship. The child's development in capacity to make friends outside of the family is ordinarily regarded as one of the most important aspects of his social development. Some people live fairly satisfactory lives in social communities with few if any friends, but they are the exception rather than the rule. Other people claim hundreds of "friends" who are really only acquaintances or playmates, none of whom can stand the test of tragedy or serious demand upon the relationship. The ideal in our American culture seems to be the capacity to "meet any man at his own level" or "to win friends and influence people." This involves three different types of relationship to people. One type of relationship is involved in the superficial social technics of what to say and do at teas or receptions and how to "sell" in the business world. Another type consists of maintaining smooth relationships with the people at the office or in the school dormitory or adult club, getting along with people whether we like them or not, because they are where we have to meet them or work with them frequently. A third type of relationship consists of those intimate harmonizings of person with person which close friendship and family living require. The finest of our American ideals implies mastery of all three types of social relationships.

Children must learn something of *social "skills"* as such, something of ease and poise, along with reasonable self-confidence if they are to master the first type of personal relationship. "Smooth" business or social manner eases the way for casual social relationships, or for good selling or business contacts. Knowing what to do with one's hands and feet, how to introduce people, how to order lunch and eat it, how to talk smoothly and convincingly about nothing in particular or about "the product" or "the company" are all invaluable. These skills and "manners" are grounded most securely if learned early. Four year olds who have learned not to smack lips or gobble food are not likely to forget in a critical deal over a luncheon table in adulthood. (As was pointed out earlier, it is not implied here that young children should have "perfect manners"; to expect this is to produce severe strains in children.) Smooth voice, free flow of good grammar and diction, ease in introductions and casual conversation come through patterns set for the child by parents and friends, and through early and relentless practice. Consideration for the comfort, the desires, and most of all for the ego of others comes through exposure to such consideration in childhood or through

unremitting self-discipline and close observation of the reactions of others in later childhood and adulthood. Some people who missed these "cultural" advantages in childhood learn through grim determination in a college dormitory or through conscientious practice based upon books of etiquette. Poor habits of grammar learned and practiced in childhood may be lost through relentless practice in adolescence or early adulthood, but in crises the old habits may spring up and trick one, even after years of later practice.

The second type of personal relationship can also be acquired later in childhood, though it is based even more upon early childhood beginnings. To keep one's temper day after day in the face of irritating traits displayed by fraternity brothers, or the other people in the office, requires self-control. To keep one's personal grievances to oneself requires the knowledge that only friends and family care about such things, plus the self-control to keep one's tongue and to smile when grouchy. To work whether one feels inspired or not, to carry one's share, to "make good" without snatching authority from others, to take or to give orders effectively—all this depends in most people upon basic habits and attitudes built through childhood. School teachers, church workers, and others who supervise the work and play of children have constant opportunities to teach them to *live and work and play skillfully and effectively with whatever group proximity provides*. "Being a good sport" carries a clear set of concepts and patterns of behavior in the minds of most elementary and secondary school children.

Intimate friendship and family living, the third type of personal relationship, test the deepest facets of the personality. Here one cannot cloak impulses and desires, habits, and basic attitudes. In time, close living and close friendship reveal what one is. In a certain sense the only preparation for this type of personal relationship is the laying of sound foundations in the personality structure. In another sense, however, friendship and successful family living can be learned; for, even though the relationships involved test what one is, a certain "art" of friendship and love can be acquired. In this sense, fine friendship and wholesome love can make one over, enriching and disciplining habits, attitudes and feelings, and thus developing the "art" of love and friendship. There is something more to friendship and love than being a person; one must know how to find and win other persons who will respond to one's real self, and, ideally, each person should become a richer, more useful and happy personality because of friendship and love experiences.

Even elementary school children learn something of this art of revealing themselves to others, and of responding to others on a friendship basis. Kindergarten and preschool children learn less consciously, but deep layers of the friendship and family-life relationship are being laid nevertheless in the first years of life. How much one concedes to the people one loves, or demands of them; whether one "goes to war" in the open about differences of opinion and desire or buries one's resentments, loyalty, or self-centeredness. Generosity or selfishness, cheerful acceptance or glum resistance—these are all attitudes and practices in intimate living caught as patterns from the intimate living one knows best in childhood. Family attitudes, viz., what men are like and what they expect of or concede to women, what women are like and what they expect of or concede to men, whose work is what, who manages money or dominates the relationship, what parental duties, responsibilities or privileges are; these are absorbed early and throughout childhood from one's own parents and immediate relatives.

However, even in these more intimate relationships much is learned on the way through life. Each friend loved happily or unhappily teaches most people something. Next to parents perhaps the most influential person in making one's personality is one's mate.³³² Next to families and beloved teachers or informal education leaders, children probably learn most, socially and personally, from their friends.

Some Research Findings on Cooperative Behavior and Friendship among Preschool Children: Social Behavior in Infants. Many studies have been done to give us knowledge of the typically "social" or "personal-reaction" development of children. One of the earliest was that of Bühler¹⁶⁴ who found in work with infants that a beginning of "social relations" was made in the second or third month when children began to respond discriminatingly to their mothers. She found them "socially blind" to other infants, however, until they were four months old. Later studies refer to personal-social development earlier than this, however. Gesell³⁷⁴ observes at four weeks that the average child fixes a transient gaze upon a face bent over him, reflecting his awareness of the face by a slight change of expression. He responds in a comparable manner to the human voice, is soothed when picked up, and thus shows what can probably be referred to as "security" if handled in a calm and assured manner. These are the beginnings of social-personal development. By four months Gesell feels that the average child gives clear evidence of recognizing "his mother or the person who tends him most often,

since he smiles when she approaches, but looks soberly at a stranger. Bridges¹³² in a careful study reports that social interest in other children grows slowly up to nine months, but rapidly after that.

Gesell³⁷⁴ gives us a clear picture of the genuine self-sufficiency of the infant and young preschool child. Absorbed with acquisition of control over his own body and with adjustment to simple daily routines, the young infant has scant attention or energy left for adjustment to people. By the age of a year, however, compared with the reactions of three-, six-, or nine-months-old infants, the child has acquired what Gesell calls "a high degree of social reciprocity." He has acquired considerable social status in the family, not infrequently at the very center of the group. He "plays the galleries" by repeating tricks which rate a laugh, pleasing himself thereby as much as he does his audience. Some early primary school children are in this stage. But the baby has no genuine sense of self-identity or of self-criticism. He is merely pleased with his performance because he is pleased with the total social situation in which others are pleased. However, the six-year-old child who may be behaving in a babyish manner has sufficient self-identity so that, with help, he can soon develop more mature social purposes than playing the galleries. Remnants of bids for the center of the social stage, however, appear here and there throughout the elementary and secondary school years, being particularly evident as a by-product of the more acute self-awareness characteristic of early adolescence.

Further Research Findings: Social Behavior in the Pre-school Years. At *eighteen months* of age children have a sense of "me" and "mine," both words being frequent in speech at this time. The run-about child is in his own way as self-absorbed as the infant. The world offers endless possibilities for exploration and new experience. This makes discipline problems since much of what he gets into is, and should be, forbidden. Thus at times he finds people an annoyance and a hindrance to his will. He does, however, interrupt his activities as a rule to "notice" newcomers, either adults or children, and, even though he seems to be little aware of them, may cry if they leave.

Some nursery schools and most day nurseries accept children of one and one-half years to two years of age. Even with a number of them together, however, there is nothing which resembles group cohesiveness. Children in the earliest stage of group social development spend most of their time in *solitary play*. Teachers of two year olds should expect very little, if any, group cooperation.

Very young children play beside other children, rather than with them, a form of play referred to as *parallel play*. In this

each child plays pretty much by himself, yet enjoys his play more, has more ideas about it due to occasional interchange of ideas between the children, and stays with it longer than he does when by himself. Even at this age and under these conditions of play the children influence each other somewhat. A bad "snatcher" may create more conflicts, a cry-baby may stimulate more emotional scenes than would be natural to the average child. On the other hand, a cooperative child with a fairly strong personality may influence the other children favorably. Friendship as such scarcely exists since almost any child will do as well as any other child to play with. Kindergarten and first-grade teachers must learn to recognize this type of play among their less experienced pupils. Unless children have a certain amount of exposure to other children, they cannot grow through the various stages of social development. Inexperienced kindergarten children usually spend much of their first year passing through this parallel play stage and the other stages characteristic of preschool children. Solitary play, which is characteristic of infancy and early preschool years, and which is preserved as a habit when opportunity for group social growth is lacking through two or three years, may be very hard to overcome. The teacher should welcome even so immature a form of social behavior as parallel play if it indicates that the given child is moving forward a step from infancy. Our job is to know what steps to expect, and to guide children through these steps as rapidly as they can absorb the necessary learnings characteristic of each step.

Three-year-old children, though still self-absorbed, are, if given proper opportunity to play with other children, increasingly aware of others. In spite of the fact that solitary and parallel play are still dominant, socialization proceeds in the form of learning to take turns at swing or slide, and in the elementary sharing of toys. *At four years* children exposed to other children become aware of themselves as belonging to a group. In nursery school they can be heard to ask, "Is this what the children do here?", thus showing their awareness of themselves as children in contrast to adults, and their growing identification of themselves with other children.* Whereas a two-year-old is seldom successful in eliciting a desired response from other children, a four-year-old often succeeds, and shows such a wide repertory of social responses as reaction to the distress of others, making requests for assistance from other children, making suggestions for dramatic play, and utilizing a variety of technics of acceptance, refusal, evasion or

* An excellent discussion of these preschool social growth stages can be found in Gesell, et al.²⁷⁴

transformation of the situation. Murphy⁷²⁴ sketches development of social expression as, first, a tendency to help others only when it is convenient or when it does not interfere with plans, and only later, the development of a tendency to stop what one is doing in order to help another. Expressions of sympathy from young children are rudimentary, and vary from child to child, some children simply staring at another in distress, occasional children putting an arm around the sufferer saying, "Does it hurt?", or "What are you crying for?"* Some preschool children even progress far enough to show kindness to newcomers in a group, or to defend the rights of younger children.

The Transition Period between Preschool and Gang. It seems in the nature of four to eight or ten year olds to show contradictory social traits. They fight their best friends and most beloved brothers and sisters more than they fight other children, probably because they spend more time with these children and therefore "run afoul" of each other's self-absorptions and selfishnesses more often. The most aggressive children are often the most sympathetic when anyone else is hurt or in trouble. However, Murphy⁷²⁴ found that children who showed outstandingly sympathetic behavior sometimes displayed exceedingly unsympathetic or even cruel behavior. This is true of girls as well as boys.

During this four- to eight- or ten-year period the child moves forward from solitary and parallel play into genuine group play. Highly organized group activity becomes characteristic of the gang age, which is usually set at anywhere from eight or ten years of age through pubescence. As a transition before this we find children playing in *shifting groups*, a form of play in which group activity goes on but the form of organization is so loose that any individual child may abandon the group for his own activities without disturbing the project. Highly popular projects at this age are keeping store, or playing show or playing school. Child A and B may say "Let's play store." They build the store, but meanwhile child C or D may join, lay a few blocks, or decide to make vegetables or other produce out of clay. Child E may elect himself delivery boy—long before there are any customers or produce. Child A may wander off to ride his wagon a while: yet the project goes on. In these shifting groups much can be learned which prepares children for the more highly organized play of the gang age. Yet, as they should be, lessons are geared so low that neither children nor project suffers if any child grows tired of group adjustment and withdraws to the peace of solitary play while he rests. Such leadership as exists in these shifting

* Bridges¹³² gives an excellent account of this.

group projects is likely to be unstable in the sense that it passes from one child to another without any particular upheaval, and the child who leads most often today may gradually give way to another who leads most often three months from now. However, teachers of young children have often observed that a certain group cohesiveness may center in one given child, so that when that child leaves or is absent such group spirit as existed dissolves and the children who ordinarily participated in the group play as individuals again.

Research on Cooperation among School-Aged Children.

Among the earliest and best known studies of social behavior of gang age children is the work of Father Furfey³⁵⁵ of the Catholic University. He studied groups of boys as early as 1926 and created the concept of "developmental age," comparable to the "mental age" or "height age." This developmental age is "a type of maturity, uncorrelated with mental age, which shows itself in changing play preferences, in a changing reaction toward authority, and, in general, in constantly maturing behavior patterns."³⁵⁵ This measure of the social maturity of children has come into fairly general use for both boys and girls although Furfey's work was with boys only.

The groups into which girls organize themselves are often referred to as cliques, whereas the boys' groups are referred to as gangs. Goodenough³⁹⁵ reports that among elementary school girls their cliques are less well organized and have less well defined purposes and less outstanding leaders than boys' gangs. Brown¹⁴⁶ says that girls organize as frequently as boys, but on less conspicuous bases, with the result that boys' clubs or gangs have been much more frequently studied. One study, reported by Brown, of 965 high school girls showed that 77.5 per cent of them belonged to some form of unsponsored club or group.

Furfey³⁵⁵ divides the age range from six to sixteen years into three periods. They are

... the *individualistic period*, the *gang age*, and *adolescence*. The latter two are sharply separated by the phenomenon of puberty. The former two are separated by a less well defined transition period occurring on the average somewhere around ten or eleven. Each of the groups mentioned has its own psychological characteristics.*

We have referred to his individualistic period above and extended it to include the earlier stages before six of solitary play, parallel play, and shifting-group play. It was Furfey's work which first set the lower limits of the gang age at eight to ten years.

* Italics ours.

According to him, boys of eight are not found in clubs unless they are definitely accelerated in developmental age, whereas a high proportion of twelve year olds belong to some kind of club. Similarly, he says, about team games, that it is impossible to organize a baseball team of eight year olds because everyone wants to pitch, whereas at twelve baseball teams or clubs are entirely possible because the right fielder will take a vicarious pleasure in the exploits of his pitching ace. Strang⁹⁶⁰ reports that playing ball is rated the most popular game by boys from nine to sixteen years of age.

Characteristics of Group Play During the Gang Age. Furfey considers the gang age a sharp contrast to the individualistic period because it is distinguished by three phenomena, (1) the separation of the sexes in play, (2) interest in clubs, and (3) enthusiasm for team games in which the team, and not the individual, wins or loses.

At least 92 per cent of the group of 168 boys studied by Furfey played with girls when they were six years old; even at age ten the percentage was still as high as 83; but at twelve the percentage of boys who would play with girls had sharply dropped to 20. Hollingworth⁴⁷³ says that boys and girls usually prefer to play separately from eight to ten years of age, though they *can* be polite to each other in coeducational play and school situations. He observes that the "double-standard" begins to assert itself at eleven with teasing, bantering and jealous competition between the sexes. Campbell,¹⁷⁹ in reporting observations on children of ages five to seventeen who belonged to recreation clubs, found that "there is at first an undifferentiated social relationship with the opposite sex until about the age of eight years, then a rising preference for children of the same sex, until puberty, when heterosexual feelings (feelings of attraction to the opposite sex) begin gradually to develop." Brown¹⁴⁶ observes that up to around eight years the play group often includes both boys and girls, especially if the girls are active in body movement or imagination.

Interest in clubs (Furfey's second characteristic of the gang period), and enthusiasm for team games in which the team, not the individual, wins or loses (his third characteristic) are accepted by most writers as characteristic of group play during the upper elementary and early secondary school periods. Brown¹⁴⁶ points out that after eight years of age there develops an interest in the organization itself rather than in the activity. Clubs with pass words, initiations and an attitude of exclusiveness or "You can't belong" become frequent. "The Dirty Dozen," "Three Musketeers," "Jones Street Gang" are typical names. Settlements

and play groups find special interest clubs easy to form. "The Adventure Club," "The Hobby Club" are typical. These clubs sometimes take on bizarre forms.

Influence of Gang Play upon Personality. The influence of the gang or play group on the formation of personality is clearly recognized by most writers on the subject. Brown¹⁴⁶ says that no other group except the family itself is of such fundamental importance in the social development of the child as the play group. Here the child acquires another type of "we" feeling. Cooperation is learned as common interests are developed and common activities carried out by the group. He adds that formerly the gang was explained on the basis of gregariousness. Now it is probably better understood, not as a response to a child's need for being in the midst of a group, but rather as a means of wider self-expression, a place to develop leadership, and an opportunity to make normal social contacts.

Thrasher,¹⁰⁰⁵ after investigating 1313 Chicago city gangs, arrives at a conclusion almost diametrically opposite to the conventional theory which assumes that gangs are a spontaneous result of a gregarious impulse. Instead of gangs being natural or inevitable, he concludes that they are the products of social deterioration and disintegration in communities. This principle he believes to be true at least for the closely knit groups that he included in the "gang" category. He adds that gangs start on a diffuse basis, becoming solidified through continued association of the members with each other. If the solidified gang persists, it either conforms to the standards of adult society and becomes a club or conventionalized gang, or it defies society as a criminal gang. In either case it deeply influences the character of the gang members. We must remember that Thrasher's study was made in a large city with many slum areas. Furfey,³⁵⁵ working in a different type of environment, finds that gangs tend to dissolve after puberty at which time, although they do exist, they exercise less influence upon the boy's life. Lehman and Witty⁶¹⁸ studied fifty gifted children (IQ more than 140), and fifty average children (IQ between 90 and 110) in Kansas City. They concluded that pedagogically retarded children turn to social play more frequently than accelerated children do. We might assume from this that gifted children are less dependent upon gangs, hence less influenced by them. However, we must not fall into the error of assuming that children who refuse to join, or who fail in participation with group play, are thereby proved to be gifted children. Terman⁹⁹⁰ gives convincing evidence that gifted children are above average in social skills. They simply have such a wide

variety of interests that they spend a great deal of time with things and ideas, whereas less gifted children spend most of their time with people.

It is generally agreed among writers in child development that children learn invaluable life lessons in group activities. Murphy and associates say:

The young child or the adolescent 'finds himself' in the group. It is in the group that one realizes oneself as a personality. It is impossible to find out what there is inside of an organism except by stimulating it; and in order to find out anything really profound about it, one has to give it varied social stimulation, intensive and prolonged. At the end of the process, the individual may quite literally be a new person, for better or for worse. It is likely that for this reason there is a considerable amount of sense in Jung's contention that the personality is never completed, but goes on building itself forever, as long as the world and the organism interact, that is, as long as life is maintained. There is even greater sense, we believe, in Burrow's contention that groups can liberate what is socially meaningful in the person and give it direction and a chance for self-development much better than any individual can. . . . We believe that not only momentary behaviors, but many deep springs of child personality, are liberated in group situations. The individual 'finds himself' because others find him.⁷²³

Competition Rather than Cooperation Is Often Encouraged by Adults During the Gang Age. The effect upon children's personalities of experiences of conflict or competition and of cooperation and friendship within the gang, or found elsewhere at the gang age, deserves some further comment. Even though the gang is primarily a teacher of cooperation, the gang age is a period in which children either naturally or by copy from our American cultural pattern indulge in competition in speed, strength, endurance, and fortitude. In the classroom they can easily be led into competition for first place in arithmetic or other academic subjects. Competition is in fact so widely used as a motive for effort among children at home, in school, and in informal educational groups that we should review any justification for it offered by the literature. Murphy and associates⁷²³ review a number of studies on the effect of group competition and individual rivalry upon effort and learning. In the studies reviewed, whether in this country or Austria, with preschool children or grade school, high school or college the results are the same. Competition and rivalry produce results in effort and in speed of accomplishment.* However, there are individual differences in responsiveness. Some children show a strong desire to

* See Bibliography. 407, 493, 821, 899, 1036, 1089

excel, some remain calm and fairly indifferent to competition, still others are frustrated and disturbed by it. Some studies show boys responding more vigorously than girls; some indicate that elementary and high school children respond to competition more than preschool children. Even among preschool children there seem to be differences, the two year olds, according to Leuba⁶²¹ merely looking on and failing to get the idea, the three and four year olds responding to rivalry from children next older than themselves, the five year olds showing genuine rivalry-dominance patterns like those of elementary school children.

Experimentally, then, we can say little against competition and rivalry as methods to be used in motivating children. The widespread opposition to competition as a motivation for children has risen, not from grounds that it does not work, but rather from grounds of philosophy. Many people feel that schools and informal educational agencies like churches, camps and settlements should not further develop an impulse which so dominates our present American culture but which, they feel, is not conducive to the best welfare of either individuals or of humanity. Aggression, domination, and rivalry are not part of the religious or moral teaching in most religious philosophies. Yet they flourish in our business and social world. The people who are struggling to motivate children from some other source are doubtless struggling to break the hold that everyday motives have over our behavior.

Three Types of Competition or Conflict May Characterize Groups. Brown¹⁴⁶ points out that conflict in gangs or clubs is of three types (these should not be confused with Brown's listing of causes of inner emotional conflict discussed in Chapter 3): (1) rivalry among group members for recognition within the group itself, (2) conflict between the group and rival groups (this can be both constructive and destructive), and (3) conflict between a group of children and the organized agencies of society. Some of these teach lessons in cooperation; some prove disastrous to the child's personality development.

In the first type, competition within the group itself, Anderson²⁸ found even young children using commands, threats, or force to gain their objectives. This is not very well integrated or socially mature behavior, since integrative behavior means some yielding to another, the finding of a common purpose among differences of opinion, and cooperation. Anderson found in 1030 paired types of behavior which he studied with young children that dominating behavior calls out either domination or submission from the other child but not integrative, or socially desirable, behavior.

In contrast to this, however, integrative behavior on the part of one child tended to call out integrative behavior from the other. The conclusion drawn is that the type of companionship in play groups should be of major concern to parents and teachers. Although the authors know of no studies of this kind with older groups. Brown¹⁴⁶ quotes case studies which indicate that domination by a gang leader may force submission from the rest of the gang outwardly, but actually creates counter dominance in the other children and is, therefore, not socially healthy as a technic. Adult leaders can often help children to develop more satisfactory group technics than the lower form of competition between members.

Conflict of the second type, between the group and other groups, serves to solidify the group within itself and proves, therefore, healthy for the spirit of any specific group. This is a universal social phenomenon. War with another nation wipes out differences of race and creed within the nations at war, fanning loyalty to the country into a clear flame. Group leaders of children, teachers, settlement workers, scout leaders, church leaders all recognize this principle when they set up competition with other groups, trying, of course, to keep the rivalry on a friendly and sportsmanlike basis.

The third type of conflict, that between a group and society, should be of concern to every adult worker with children. Outright defiance of law by a preadolescent gang, or of social convention by a group of adolescents, can prove serious in its consequences. Much of such conflict represents a basically wholesome impulse, viz., the child's general attempt to stand on his own feet. Difficulty arises when this impulse "gets off the track" because unwise adults have insisted upon over-rigorous supervision. Much bad group behavior has rather simple beginnings in a "swiping" of apples for fun, of smoking a cigarette behind the woodshed, and accidental or careless destruction of property. Trouble flares up when adults treat such episodes as the beginning of a career of crime, punishing too severely, ostracizing too completely, producing too much excitement and sense of defiance. Children should be helped to find excitement in more wholesome directions, may perhaps need to be told that many children go through such stages only to discover that it is much more fun to get excitement and adult attention in more grown up and satisfactory ways. This does not, of course, mean that such behavior should be neglected or condoned; but rather that it should not be allowed to become a focus for adult-child conflict and antagonism. Adults represent law and order to children.

Encouraged to hate adults and to try to evade or outwit them, children are by this fact encouraged to hate law and to try to evade it or to outwit its authorities.

Factors Which May Produce Conflict or Cooperation. The size and age distribution of any given group are important in determining the number of conflicts which occur. In reporting work on preschool children two to five years of age Murphy⁷²³ says that a group of twenty children of like ages, for example, will have more conflicts and will show less sympathetic behavior than will a group of different ages. This seems natural since children of like ages are more likely to want to play with the same toys, whereas in a group of wider ages the older children are stimulated to show sympathy for and to help younger children. Confusion and conflict would result, however, if children of different ages were put into a program which does not allow a wide choice of activity. Murphy's observations were made in nursery schools where programs are free and where the only real group participation is in small groups and involves those children who are near the same level of development. In schools or on playgrounds where activities are scheduled or space limited, wide age ranges create confusion and conflict. The general experience of school people corroborates this since they try to group children by age and ability rather than in groups representing wide ranges of age and ability. Most camp, settlement, and playground workers find that four and five year olds do not mix well with ten and twelve year olds, nor do preadolescents mix well with postadolescents.

Murphy⁷²⁴ found also that the functioning of the children in groups of different sizes depends a good deal upon the child. Some children are confused and unable to get into effective action in groups of more than two or three. These children seek always to avoid the larger gangs and to find one or two special friends. Other children seem to function best in larger groups, playing most happily in groups of eight or ten to eighteen or twenty, and working best in groups of twenty-five to forty. She also reports that an important factor in determining whether any given child reacts favorably or unfavorably to any given group depends a good deal on the capacities and interests of that child and of the majority of the group. An extremely active child who prefers large-muscle play may find himself ostracized and "a bad boy" in a gentler group of children who prefer small muscle activities. A child who does not like music and has no ability with it may find himself a misfit in a group of children most of whom love the music period and therefore spend considerable time with it.

A good deal also depends upon the patterns of behavior and feeling in the group. Some groups are dominantly gentle and sympathetic, stopping play to attend to an injured member. Most gang-age groups are sarcastic and intolerant of "cry-babies," thus helping a too soft child to become somewhat more robust in the face of pain. Some groups place a great premium upon defiance to adults, calling anyone who complies with adult authority a "sissy." Other groups, although not timid, accept cooperation with adult authority as a matter of course.

Equipment Affects Group Activity. How much and what kind of equipment promotes or retards socialization seems still a matter of dispute. Some studies report that more equipment stimulates the children to more action and hence more contacts with each other. Other studies report that less equipment makes the children more dependent upon each other, hence stimulates social contacts. The differences are probably due to a lack of agreement on basic set up. It seems reasonable that groups of children on crowded playgrounds devoid of equipment or in bare gymnasiums might be greatly stimulated to socialization by introduction of a ball or two. On the other hand, playgrounds and schoolrooms heavily loaded with swings, slides, clay, easels, and paints and other equipment which stimulate children to busy themselves by themselves, may find that removal of some of these will stimulate group activities more. Doubtless the answer to the effect of equipment upon conflict or cooperation within any given group lies in what the equipment is as well as in how much there is of it. There are many studies on children's preferences in toys and play equipment at various ages and for each sex, as well as some studies on which equipment and materials encourage individual work or play and which encourage group work or play. The answer is not simple, however. A ball may be the means of welding a disorganized group into cooperative play at age ten, but only an instrument for individual play at two; or it may mean to one ten year old only another means for amusing oneself, whereas to another ten year old it may mean the coveted instrument for getting him into a group.

Adult Leadership Important. The quality of adult leadership is also important^{628, 824} to the determination of conflict or cooperation within the group, some leaders being gifted in ability to stimulate cooperative behavior, others thinking they are thus gifted because they can dominate the situation by force or the implication of force in such a way that they keep the children quiet. Some leaders seem by their very presence to stir up conflict of the undesirable sort.

In nursery school studies we have some evidence on the best number of children to have in a group, the best age range, the amount of space, kinds of equipment which are desirable, types of personality most to be desired in teachers, and best adult technics for handling children in order to get a maximum of cooperation and a minimum of conflict. The evidence on pre-school groups is not yet extensive enough, however, to be conclusive on any of these points. We have a good deal of evidence about these matters for children of school age. The great difficulty in making use of what we know lies in our inability to so finance public education or public recreation as to make possible the size of the groups, the use of materials, the plant and space, and the hiring of teachers of the type we know to be best for the development of children. Public school groups in large cities are almost always too large. Materials and equipment in most rural and village as well as in larger cities are almost always too limited.

Fortunately, the Urge to Cooperation Is as Innate as the Urge to Competition. Just as conflict and competition seem inherent in the nature of gangs, so also does cooperation. This is encouraging to the teacher or group worker, since it is the basis for constructive development through group activity. As we have seen above, it is, in fact, partly through conflict that the nature of cooperation is made clear to children. There is, however, also an element of pure spontaneity in much of the cooperation children give each other. They imitate each other as early as fifteen or eighteen months of age. They play in a loose group, in parallel or independent but nevertheless imitative play, as early as two years. In fact, this liking to play near another child, doing what he is doing, even though each child does it independently, is a preferred form of play for many two and early three year olds. Children of three to five love to look at things together, or to hear a story together. They begin to like certain specific companions for the sheer sake of companionship. Around four they play in the shifting group formation, even though no adult urges them to, or even sets the stage for such play. By five or six years, if children have had an opportunity to play with other children, rather closely woven play of an organized group develops, again with no urging from adults. From eight or ten years to adolescence most children find gangs or cliques quite apart from adult urging and often in defiance of adult discouragement. Furfey,³⁵⁶ who, as we have seen, knows boys well, says that the average gang, like the average individual, is more good than bad, though he warns us that gang standards

are not to be measured in terms of adult standards. Adolescents find each other also in spite of adult discouragement. This all comes about quite spontaneously, the urge to be with others and to cooperate with them seeming thoroughly natural.

The Highest Type of Cooperation, However, Is Not Innate.

Cooperation of a high type, however, does not spring full blown into mature existence. It must be learned. But it must not be forced. Many parents and teachers are overanxious about "getting along nicely with one's little playmates." During the stage of parallel and shifting group play children wander off into their own pursuits in a manner which might be regarded by the not too understanding adult as discourtesy to each other. Contacts at this stage, usually ages two to four or five, are typically brief and somewhat egocentric. In the shifting group and in the early stages of more closely organized group activity (usually from five to ten or twelve years of age) young egos are strong and not too well controlled, social technics are amateurish and full of rough edges. Quarreling is frequent and often violent. Children should not, of course, be allowed to hurt each other seriously, but they should be left free of adult interference in order to work out their technics of getting along together. Wise adult guidance and some help in seeing that opportunities in space and equipment are available will help to speed the process; continued adult interference can only stifle it.

The usual and desirable developmental picture is one of increasing self-control on the part of individual children, of increasingly smooth social or play technics, and of an emergence at adolescence or early adulthood of higher forms of cooperation. The adolescent should continue to learn better and better how "to take it" in group activity, should develop an improved self-control, and should gain further insight into the needs and wishes of others.

What Makes a Child Choose the Friends Which Make Up His Gang or Clique? As in the studies of preschool friendships we see also in the friendships of the gang age a tendency for children of similar chronological ages to form more friendships than do children of different ages. This, of course, seems obvious, since children of similar chronological age are, as a whole, of similar mental and developmental age. However, where children differ from the average for their age in mental or developmental age, we find them choosing friends from among children of a similar mental or developmental level, rather than from among children of the same chronological age.* Superior children choose

* See Bibliography.^{364, 768, 1089, 1048, 1061}

other superior children of the same age or average children who are older. Retarded children choose other retarded children of the same age, or younger children. Children gravitate toward similarities in height and weight, developmental age, scholarship, extroversion, and physical achievement. Hartshorne and May⁴⁴⁸ found resemblance between friends in honesty and dishonesty, but thought that this resemblance was probably more due to classroom association than to specific friendship contact, since honesty was found by them to run in classroom groups. Sheer propinquity, or chance nearness in school or neighborhood proved in this study to be a determining factor of importance in choice of friends.

Leadership in Gangs. Leadership in gangs or highly organized play groups is affected by age, social status, intelligence and school marks, since the children of obvious ability and prestige seem to sustain the role of leadership.⁷²³ Hollingworth⁴⁷⁴ in studying extremely superior children found, however, that such children were not chosen as leaders by average children as often as were moderately superior children. Apparently a too brilliant child has too little in common with other children to be chosen for leadership by them. Leaders seem more extroverted than average children.¹⁷⁶ Two studies^{28, 791} agree that the child who attempts to lead by domination is a less strong leader than the child who leads through understanding, skill, and the use of the cooperating principle. Children who are genuine leaders must have some self-discipline, some grasp of abstraction and recognition of social ideals, some awareness of other personalities, ability to pursue objectives consistently and to subordinate immediate to more remote goals. This is seldom developed before the age of nine or ten, so that full-fledged leaders are seldom found among children younger than this. Certainly, some of the important lessons to be learned in the gang are self-control, how to get along with other people by replacing sympathy, tolerance and understanding for the boisterousness, loud language, bullying, and bidding for attention which characterize the six- to eight-year-old child. Fortunately, the influence of the gang in the development of a personality adequate to meet adult demands is fully recognized by most parents, particularly fathers, and by most teachers.

Some Children Spend Too Much Time in Gangs or Group Play. We have, in our culture, a clear feeling that the child from six or eight to puberty who does not "socialize" or seek a group of peers is somehow a problem child. The child who likes to spend considerable time by himself, reading, building, or other-

wise entertaining himself is likely to be considered a social deviate, a child who is somehow failing to grow normally. Although there is little doubt that good adult adjustment to the business and social world as we know it depends heavily upon skills with people, and although we can see clearly as we watch child growth that many of the most valuable of the lessons of how to get along with people are learned through gang or clique experience, such established authorities as Lehman and Anderson⁶¹⁵ say that too much social participation in play is just as unwholesome as too little. Witty, in discussing his extensive studies, says:

These data suggest that certain sociologists and educators should revise or abandon their pleas for indiscriminate sociability. One frequently hears that the nonsocial child is a misfit, that wholesome growth is consummated only through numerous and varied social contacts. It seems, from the data presented in this study, that one should not encourage indiscriminate sociability if one desires the most wholesome development of the growing child. It appears to be the kind of social contacts made, not the number, which should be of great concern to the person charged with the guidance of children.¹⁰⁷¹

Furfey reminds us that not all children of any given chronological age are of the same developmental age. Some of them do not fit into available groups of peers, and this produces a whole set of problems for such children. Any child who dislikes sports or is not skillful in them or who lacks courage, or is sensitive may be ostracized by the only available group of peers. This may produce bitterness in the child who feels from parents or teachers that he has somehow failed them in failing to find popularity in a peer group. Such children sometimes suffer deep feelings of inferiority and may become moody, may retreat into fantasies, or other undesirable emotional behavior. Many gifted, charming-to-know children fail to find congenial companionship in the available peer groups. The more fortunate of the non-gang children, however, usually find one or two congenial friends, and in these friendships have not only companionship and freedom from loneliness, but also an opportunity to learn many of the lessons of give and take, of sympathy, self-control, and tolerance which serve them well in adulthood. Some of the too successful "gang" children find in gang activities so much satisfaction that they develop no other academic or creative interests, and, therefore, remain in the gang stage of social development for the rest of their lives. Such people are those who know no recreation apart from night club, movie, or ball game, who have few inner resources, no greater command of the technics for getting along

with people than are characteristic of gang age children. Apparently, in socializing with the gang during the gang age, the motto of "enough but not too much" seems to apply.

Fitting the Child to the Group. Association with the "right" gang is often a problem to parents and teachers. It is well known that gangs made up of a majority of wrong-standard children will do many destructive things which any of the individual children would not have the courage or the thought to do alone, thus setting a bad pattern for individual children, or often getting otherwise harmless children into real trouble. It is equally true that a gang made up of a strong majority of "right-minded" children can prove a thoroughly wholesome influence on "wrong-minded" children. Parents and teachers, therefore, often attempt to do considerable shifting of children from one group to another, not only to remove an individual child from a bad group to a good one, but, often, to get him into any group at all which will accept him.

Just how much we should shift a child from one group to another in an attempt to find the group in which he will function most easily is open to question. Some parents keep shifting a child from school to school in an attempt to find some group of children or some teacher who will "understand" him. This only encourages such a child to think that all the adjustment between himself and a group should come from the group and none from him, or that a school situation can be found which will exactly fit him as he is. Even though every clinician and worker with children knows that sometimes the type of group or school is not one to which a given child should be asked to adjust, he also knows that to ask no adjustment on the part of the child to group or school is to allow him to get an entirely false idea of what to expect from life. Every child, in order to benefit from a group or a school needs to feel at least somewhat equal to the situation, to feel some hope of achieving status on the basis of his own capacities. A hopeless situation means inevitable defeat and discouragement, both of which are destructive to personal and social growth. Children should be moved out of a too hopeless, too discouraging situation. However, there seems an evident necessity for workers with children to discover ways of giving children ample confidence in any reasonable situation, partly because we cannot always change children from one group or school to another, partly because we cannot always change group situations to fit the needs and capacities of every child in a group, and partly because life in his adult years will ask much from him in the way of adjusting to situations as he finds them.

DEVELOPMENT OF COOPERATION AND FRIENDSHIP IN ADOLESCENCE

Children Carry Certain Residua from Gang Age into Adolescence. Even though in some socio-economic groups gangs persist after puberty, the end of the gang age is marked by adolescence according to Furfey, as we have seen. In gang experiences children in our culture encounter problems of definition of their role in the school or play group; namely, their role of leader, dominator, or isolate. They also, as a rule, define their activity role such as "good student" or "athlete"; and their status role, of superiority or inferiority as individuals. They have the problem of defining their relationship to adults in terms of submission or rebellion, of love and acceptance or of rejection or antagonism. As we showed above, many of their attitudes toward sex, race, religion, economic or social differences are formed during this period, as are their attitudes toward school, family, church, and clubs, or toward isolating themselves from such institutions. As children enter adolescence they carry with them, as a rule, a somewhat crystallized status or role in relation to other people. We cannot, therefore, deal intelligently with them in junior and senior high school unless we have some understanding of what has gone before in their lives, and what they have gotten out of their previous experiences. Each child, upon entering adolescence, will tend to behave in patterns determined by his background and experience.

Characteristic Changes Occur. One of the most characteristic changes which occurs as children pass from the gang age into adolescence is a change in interests and activities. Play interests, as defined by baseball, marbles, and other activities which boys share with boys, and girls share with girls, all wane somewhat in favor of party activities and other means of being together in boy-girl groups.^{360, 618} When the adolescent does play team games, as he still frequently does, he plays them "in a somewhat more critical spirit."³⁵⁵ He wants organized team competition, coaches, uniforms, and equipment. The vacant lot no longer satisfies him. Since girls mature physically on the average over a year earlier than boys, Stolz and associates⁹⁵⁵ found girls taking the lead in instituting social dancing and in arranging parties attended by boys and girls together. Some of the boys allowed themselves to be taught to dance, though it was not until a year later when they were biologically mature that they became really interested in participating. During the transition period many of the boys simply hung around the dancing and watched.

Tastes and Characteristics Preferred in Peers. Tryon⁹³⁶ made a careful study in Oakland, California of the characteristics which 200 pubescent and adolescent children considered desirable in each other and which is worth summarizing at some length. What boys expected or liked, and what girls looked for as desirable differed so much that they are cited separately. What is considered ideal in the seventh grade differs from what is considered ideal in the ninth and in the twelfth grades; therefore, these are cited separately.

Seventh grade boys admire in other boys: expertness in organized games, readiness to take daring chances, ingenuity in leading or directing games. Activity of any sort is high in choice of qualities to be admired; aggressiveness, boisterousness and a rough and ready appearance are definitely preferred to submissiveness, reserve or tidiness. Their idea of a happy person is a noisy, raucous type.

Seventh grade girls consider desirable that behavior which represents the standards held by their mothers and their women teachers: the demure, prim, ladylike, docile prototypes. They admire pretty, friendly, popular, tidy girls who are sedate, submissive, and nonaggressive. They are only mildly interested in organized games. They like a happy, humorous person who has a sedate kind of emotional buoyancy. Tomboy girls who are daring and jocular are accepted by the group, but are not especially liked or admired, just as the gentle, pleasant, lovable boys are accepted but not emulated by the boys.

Ninth grade boys still admire physical skills, courage, strength, and aggressiveness, but somewhat less; and unkemptness has become highly unpopular. (This is encouraging to the parent who feels that the seventh grade boy will *never* wash himself.) Boisterousness and showing off have now become "childish" in the minds of the ninth grade boy, and a too high energy output in the classroom is likely to condemn one as a nuisance. Either conforming with or defying adult commands is a matter of slight significance. Social ease and poise, personableness and likableness share honors in popularity with physical skill, strength, and aggressiveness.

Ninth grade girls shift the emphasis from their seventh grade admiration for ladylike conformity with adult standards to being a good sport and attractive to boys. It is interesting to note that the girls admired most in the seventh grade for their ladylike qualities were not the same ones who, two years later, were the ideal of the group for their social attractiveness. In the ninth grade "peer culture" is forcing girls to be socially active in a

hail-fellow-well-met way, having many friends, and being "popular" in large groups.

Twelfth grade boys still maintain a high regard for skill in athletics. An outstanding athlete needs, apparently, to have little else to retain a position of great popularity. However, a mediocre athlete can win a place for himself if he is good-looking, tall, grown-up, and mature. Popularity with girls can be achieved with such traits as appearance and easy social manners, and with an ability to do smooth social dancing. A socially poised, or mature, boy with high academic standing is popular; "brains" and intellectual achievement minus the social skills are not admired. Being unkempt is not generally acceptable unless such appearance happens to be a momentary fad. Ability to meet adults on their own level is admired and defiance of adults has already been branded as childish. This differs in other social and community settings. We must remember that this particular study was made in a fairly privileged setting and on boys and girls that another worker⁶⁴⁷ with the same general type of young people has referred to as "expressive western adolescents." The boys in the twelfth grade of this study probably express the ideal of twelfth grade boys in the country at large, however, when they set as their ideal a boy who must be both honest and capable in anything he undertakes.

In this study *twelfth grade girls* expressed as their ideal the girl who had accepted and achieved her feminine role, the well-groomed, pretty girl. However, though the tomboy, "masculine protest" type of girl was not acceptable as a type, the "helpless female" was not the ideal of the "feminine" role. According to this study, the "feminine" girl may be of several types, but she must have enough ability in physical activity to be able to do something with boys besides dancing. She may win at the two-some games sometimes, but she will not usually be popular if she gives the impression that she could win all the time. Thus she may be the capable, friendly, polished type. She may also be the glamour girl type, if she combines attractiveness to boys with poise, polish, and consideration of others. She need not have "glamour" looks if she is not too unattractive but has poise, good nature, and a sincere interest in the happiness and welfare of others. However, the twelfth grade girl who wishes to be popular must in any case dress in good taste and be stylish according to the standards of the girls in her group. In general, the popularity with the larger group or the good mixer so admired in the ninth grade gives way to the necessity of belonging to a clique or exclusive club and of being popular with some desirable boy.

An Individual Adolescent's Social Success Depends upon General Development and Training. All of these standards will, of course, vary from community to community, but in general they show the development of young people's ideas of themselves and their standards for friendship. How these young people accept each other and discover the best ways to manage their friendships and personal relationships is dependent upon their general background of self-control, their training in consideration for the needs and wishes of others, their own individual conception of the masculine or feminine roles in life, and their general level of psychosexual development.

Friendships and personal relationships in adolescence take on an emotional tone which probably reflects the sexual development so important at this age. Although the adolescent declares his independence of adult standards and controls, he is actually very dependent upon conformity with his peer group. However, his keenest interest, once adolescence is well established, is in boy-girl friendships. This accompanies rapid progress in his psychosexual development, so we shall turn in the next chapter to a review of this aspect of growth.

QUESTIONS FOR CLASS STUDY

I. A. Observe a group of preschool children. What evidences of conflict do you find? What types of cooperation are in evidence? What part does any adult who is present play in either type of behavior?

B. Do the same for a group between six and twelve years of age.

C. Same for a group fifteen to eighteen years of age.

II. Select some child who is a problem because of too aggressive behavior. Find out as much as you can about what situations call out this behavior. Find out as much as you can about the satisfactions and frustrations of the child's present living. Also his life in earlier years. Can you explain his behavior? What, if anything, can or should be done about it?

III. Select some child who is a leader and outstandingly popular with both adults and children. Observe him in the classroom and in free play. Is his popularity based on sound work and cooperation or is it a product of charming bids for attention? What can you find out as the causes of his present behavior and personality?

IV. Observe a group of junior high school boys, a group of junior high school girls, one of senior boys in high school and one of senior girls. Do you find their general ideas of what they consider desirable in themselves and in each other correspond to those found by Tryon in her study?

V. Recall your own childhood. Can you trace the steps of your own social and personality development? What do you think you can do now to further improve your social adjustment?

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14. SOCIAL AND PERSONALITY DEVELOPMENT:

Moral Judgment and Psycho-Sexual Development

DEVELOPMENT OF MORAL JUDGMENT

Moral Judgment a By-Product of Many Other Learnings.

A large part of that mature balance of judgment which sees individual rights in clear perspective with group rights and which is called moral judgment is made up of all those self-controls, awareness of self, skill and insight into groups, reaction to the authority of parents, of church or of cultural mores which we have been discussing. The child's gradual acceptance of group codes, his ability to adjust his own selfish, impulsive behavior to these restrictions grows as his conscience grows. Moral behavior is in many senses a by-product of his general social experience.

As we have seen in the development of the self the child's first conception of what is *right* or *wrong* is simply that which his parents permit or forbid. He is governed in early childhood by what Piaget⁷⁹⁰ refers to as *moral realism* in which the world is exactly what it seems to be; there are no points of view; there is no relativity; things are black or white, wrong or right. As nearly as the young child sees, parents know everything; therefore, what they say or think is right *is* right. Children judge behavior quite objectively and not at all in terms of motive or circumstance. Punishment should be meted out, according to the conception of the primary school child, in terms of the amount of damage done rather than in terms of possible mitigating circumstances. Authority is absolute.

Learning to Fit Rules to Circumstances. Only with time, experience, and a great deal of adult help does the child take the next step in development of moral judgment. Gradually, according to Piaget⁷⁹⁰ he learns that rules are not objectively real, but that they are made by people, and can be modified to fit circumstance. One child, for example, was sternly taught to come home at once from school. He accepted this rule as absolute, and one day ran home through a heavy rain, splashing mud on his clothes. He was

punished for his lack of judgment in not waiting at school until the rain was over. He was thoroughly bewildered at the punishment, since the only factor which governed his behavior was adherence to a rule which he considered absolute. It is only in a more mature stage of development that the child can see the flexibility of authority situations in terms of the "greater" good which lies behind most rules. Only in the more mature stage can the child see that the rightness of an act lies in carrying out the spirit rather than the letter of the ruling.

Understanding Justice as Different from Blind Application of Rules. Only in a fairly mature stage of development, according to Piaget, is moral judgment "tempered by considerations of equity." In the preliminary stage the child learns to adjust the rule to the spirit of the rule; he sees rules in terms of their use to people, but all people are absolutely equal. Only in the later stage does he grasp the concessions necessary to fulfill real justice: the lame boy can be given a handicap in running; you don't push girls around in "pump, pump, pull-away"; you don't strike children who wear glasses.

Lerner⁶²⁰ in a study of American children of somewhat more privileged socio-economic status than Piaget's selection of Swiss children found a general check with Piaget's findings, and made one valuable addition. He reports that children from eight to twelve are governed by a double basis for morality. It is, for example, worse to lie to your father than to your mother, not only "because he can punish harder," but also because "your mother is sweeter" or "understands you better." The child in such an instance is governed not only by the fear of punishment but also by the desire not to "let mother down."

While Learning to Adapt Rules Children Often Come into Conflict with Adult Standards. Murphy,⁷²⁸ in reviewing studies on this subject, concludes that the step from absolute acceptance of objective rules to the modification of rules or codes in terms of the people involved is not a simple step. Children do not assimilate the moral rules which are handed down from one generation to another as ready-made principles. Each child must "rework" these principles into something which he can integrate into his own life, in terms of his own individual needs and his own identification with and respect for the other people in his environment. For this reason Murphy states that many moral judgments of children of elementary school age are often in violent conflict with those of their parents or even of the whole cultural group around them. This is because the children have not made the rules thoroughly their

own. Preschool and primary school children have a limited capacity to extend their identification with or interest in other people. Their moral judgments are, therefore, largely in terms of the world as seen through their own eyes, or in terms of the prestige and authority of their parents, or later, other adults. As the child's capacity to identify himself with others and to be interested in others grows, his capacity to judge situations on the wider basis develops. He becomes less dependent upon adult authority, and in time even less dependent upon the majority rule of his peers; he develops the capacity to "judge" situations for himself.

The Balance between Selfishness and Moral Behavior. In specific terms, the child learns about morals or the group mores as, for example, he learns about honesty, which includes honesty in property, money, time, truth telling, and so forth, or as he learns about the rights and privileges of others, viz., as he learns self-control and consideration for others. He must learn this self-control and consideration for others by a process of learning that in the long run he has a happier time living with others if he curbs himself in favor of the welfare of others. Practically, of course, there is a limit to self-sacrifice in favor of others, since the person who fails to preserve his health and to regard himself sufficiently to keep a balanced frame of mind, soon ends his usefulness to society. Gradually children must develop a fine sense of balance between what is due oneself and what one owes to others. Sexual morality is grounded upon these other moralities, viz., upon self-control and a fine sense of consideration for others. It also involves a sense of proportion which can postpone immediate pleasure for the sake of a greater future fulfillment.

Step by step children must develop control enough over their primitive or selfish impulses to enable them to live considerately in a group. Repression of desirable emotions and urges, or impossible restriction of any basic urge is not what is meant here. The lesson to be learned is a direction of emotional energy along channels which prove socially useful rather than socially destructive. One of the necessary parts of development of self-control is learning to "resist temptation." Children do not learn this by being protected from all temptation; they learn it only by facing increasingly strong temptations successfully. Personal pride in the development of a social and ethical responsibility to others seems to be one way of combining the egotistic and the altruistic impulses. Practice in generosity, in sharing work under circumstances which are fun, praise, and a building of a sound reputation for being a dependable person are all effective.

Development of Conscience. Basic to all this is a development of what the psychoanalysts call the super-ego.* In popular language this is conscience, or self-censorship. The child's experience, to be sound, must be such that he learns not only to avoid clashes with adult or group authority but to so censor his own behavior that he behaves from inner standards and not simply so as to "get by" or not to "get caught." At first, of course, as we have seen from Piaget's work, he behaves from outer standard and fixed rules which are made by others. Only as he matures does he develop that inner standard which fits *him* and is integrated into *his* life philosophy.

Jones⁵⁶³ says that: The limits to which one's conscience can be made to function in making intricate and subtle distinctions are probably dependent at least in some measure on native endowment. There may even be certain prepotent impulses which influence the kind of conscience which an individual develops. But, within certain very broad limits, children and adults acquire their consciences by reacting to the stimulation which such environmental factors as home and friends, church and school, afford.

As we saw in Chapter 3, the child is at first aware only of his own body and of his inner, instinctive needs. As his sensory mechanism develops and his awareness increases he comes gradually into possession of the inhibitions and controls which "watch over"† the instincts. Out of this set of inhibitions and controls there comes in time to be an inner censorship or conscience which is dependent at first entirely on the standards and ethics which the parent represents and which they hold for their child.‡ As the child

* Mahler⁶⁶⁶ p. 44 quotes Freud as follows: "Freud described three parts of the total personality; First the *id*, which furnishes the instinctual energy generated by the biological processes of the organism and which is entirely unconscious, secondly, the *ego*, which develops through differentiation and higher organization from the *id*, and which consists of conscious and unconscious parts, and third, the *superego*, which represents in the total personality the mores and standards of the parents and our cultural society."

† Mahler's term.⁶⁶⁶

‡ Bartemeier, Leo, a psychoanalyst, in a series of lectures at the Merrill Palmer School in 1946 phrased this process as follows: "The ego becomes separated from the *id* under the influence of external excitation. In the beginning the infant cannot do much about the external excitation; he has no clear conscience, but only the pain of increased tension and the pleasure of release and the decrease of tension when his need is met . . . As perception and motor controls develop the child becomes capable of more and more control and inhibition. Thus the ego develops . . . As he becomes capable of love of his mother and father, his self-esteem becomes dependent upon their approval or disapproval. . . . If they disapprove of him, his self-esteem is lowered and he feels a sense of guilt. If they approve, his self-esteem rises and he feels whole and pleased . . . Thus, the superego develops out of the ego, which has in turn, developed out of the *id*."

See also Davis and Havighurst,²⁶³ Chapter XVI, and Fenichel, Otto: *Outlines of Psychoanalysis*.

branches out beyond his home he encounters the approval and disapproval of the teacher and of other children and their families. As his standards of behavior and how he feels about his standards are influenced by others his conscience is affected. Thus, throughout the years of childhood the conscience develops, becoming, if development is normal, a more and more effective instrument for the guidance of behavior into socially constructive channels, and a more effective censor of undesirable and destructive behavior.

Conscience governs behavior in ways which do not always operate through the conscious mind. Many of the impressions, and of the feelings and beliefs which ultimately determine how one behaves in a given situation lie deep within unconscious layers of the mind. A feeling of guilt may often be an uneasiness which the individual cannot explain because the reasons for it are not easily accessible to the conscious mind. In other words, people often behave in a way which at the moment seems quite satisfactory to the conscious mind, only to discover that they are afterward gnawed at by a sense of guilt which they cannot understand. The reason is that the real censors of behavior are deep-lying inner forces, laid in largely during early childhood, and grounded in feeling rather than in intellect.* It becomes extremely important, then, that the child should have throughout childhood† a desirable

*Bartemeier, *ibid*, says: "The ego, which is always in contact with the outside world, must take into account what is going on in the environment. It has to meet the demands of reality, such as 'You must obey Mother because she will spank you if you don't.' But it also has to meet the inner demands of the super-ego while at the same time reacting to the pressures from the id which says, 'Go ahead and do it.' The ego has three masters in life: the environment, or the life outside; the conscience; and the id. The better the ego manages this triangle the better the balance of personality. To get this balance one should give the child an optimum of satisfaction on the one hand and optimum of frustration on the other. The key is to be aware of which situations the child can, with reasonable effort, handle for himself and of which ones we must protect him from. Give the maximum of work that the child can take with success, and also a maximum amount of frustration that he can take without too great reaction. The first period of life must be complete protection and spoiling (see also Ribble⁸³⁴); but as the child becomes able; he must be encouraged to do things for himself, and he must be gradually exposed to things that he fears or that frustrate him."

† Hacker and Geleerd,⁴¹⁹ in a careful study or a number of case histories from a school which handles disturbed adolescents, found that adolescent disturbances can be handled with better results and with a more favorable prognosis when treated with firm authority, rather than with an atmosphere of unlimited freedom. "The *id* impulses are tremendously intensified in adolescence. The superego, though existent, is inoperative, which results in increased anxiety. The behavior problems of adolescents can be understood as defense mechanisms against anxiety or as acting out because of anxiety. Granting of unlimited freedom leaves the adolescent unprotected in the throes of anxiety, induced by his instinctual urges, and is actually experienced by the patient as increased danger."

grounding in the affectional security and the effective discipline which make for desirable development of the conscience, both at the conscious and at the unconscious levels.

Development of Tolerance. Awareness of social problems *per se* is a matter of being able to think and feel past the people *I* know personally. Prejudices can arise, and reflect the attitudes and words and voice tones of the people around the child. A four year old will refer to a "dirty Chink" long before he knows that a Chinese person is meant. But when, at six or seven, he does find out that "Chink" means a Chinese person, he carries the emotional implication of the earlier phrase. A three year old is still struggling to grasp the fact that other children in the same social group as himself are people, having parents, and homes and interests and feelings like himself (see p. 443). By six or seven the child from across the railroad tracks will be thought of in the terms set by the attitudes of parents and other adults. At eight or ten, however, the child may discover for himself that the child from a different social group is a good person to know, and thus widen his social tolerance in spite of adult pattern. School is another means of developing tolerance. There he learns, for example, that little Dutch children wear wooden shoes and live beside canals with windmills. One of them was noble and stopped up a dyke with his hand. Such specifics make a groundwork for tolerance. Tolerance as an abstract principle, not just speaking kindly and thinking kindly of the Chinese, or poor children, or Dutch children, but as a general principle comes only later, if at all. Like all abstract learnings, however, it comes most clearly to the children who have a sound foundation of repeated specific instances. This, as well as the elementary school children's omnivorous appetite for new facts, is a reason for including the stories of children from other lands now widely taught at the elementary school level.

Home, School and Other Agencies Should Cooperate in Development of Standards. The school in some instances may compete with the home in the formation of standards, as may the standard of the child's play group. Movies, radio, scout troops all play a part, and, in recent years, an increasingly important part, in the formation of the child's moral pattern. Brown in his *Sociology of Childhood*¹⁴⁶ points out that during the later elementary and secondary school years in some communities children are seldom seen at home excepting to sleep and eat. He considers that the demands of competitive outside forces are making basic cooperation within the family increasingly difficult. He suggests fighting these outside forces by encouraging reading aloud in the family in the evenings, family parties to the movies, sharing radio programs,

and especially sharing household duties and responsibilities together.

Unless confusion of standards is to result, however, home, school, and community must not fight each other in this matter. They must get together, each learning what the other is doing and each, if necessary, conceding points in training to the other. It is not always possible, of course, to reach an agreement. Some homes in any school district will find that they differ basically from some standard of behavior set by the school, such, for example, as amount of home work required and what the child's attitude toward it should be. The school wants the homework done; the parents think school hours should be enough for anything the school should require. Such deadlocks are hard to break; meanwhile the child's attitude about his responsibility to work may suffer. We must do what we can to solve such conflicts for the sake of clarity and effective integration of attitudes for the child.

Bases for Moral Growth. Basic to good moral growth are: (1) As good physical health as possible. Children who are strong as a rule have more courage to stand on their own feet, and to resist temptation. They remain as free as possible of bitterness and revenge motives. (2) Emotional security, a sense of being loved and wanted, of companionship and sharing. In this atmosphere the child learns to "love thy neighbor" because he is himself loved; he has no need to compensate for a sense of isolation, no need of bitterness or a revenge motive which so often lie at the root of delinquency. (3) Adequate occupation and avenues for the expression of adventure and excitement along wholesome lines so that he is not driven to being "bad" for excitement or freedom from boredom. (4) Continued discipline in self-control so that he becomes able in increasing measure to curb childish impulses. A warning is needed here that he should not be forced into repressions of natural activities, or expected to achieve adult control in childhood. This must be an increasing achievement throughout the childhood period. (5) Continually widening social horizons so that his ability to know, to tolerate, to sympathize, to understand, and, therefore, genuinely to consider the rights and privileges of other people will constantly develop. (6) The inspiration (usually provided by religious training) to desire the right strongly enough to find sincere satisfaction in doing it.

Beginnings in Moral Growth Can Be Made Early. These developments must be gradual. But even in early infancy a beginning can be made. For example, the delays necessary in the preparation of baby's bottle should teach him to stop screaming because he is learning to wait, for a moment, between his feeling

of need and the gratification of his need. Even an infant should not be allowed to force others to dance unnecessary attendance upon his whims, since even an infant must begin to realize that the world does not revolve around his wishes and needs.

During the preschool period the child should learn to take much of the burden of his own care, feeding himself, waiting on himself at the toilet, caring for his own playthings. He should also have made a real beginning in doing things for others, little errands for the family, picking up the newspapers or other helpful household duties, and thus realizing that he has some responsibility for the happiness and welfare of the family group. In social contacts he should have learned not to snatch toys or strike other children "because they don't like it any better than he would if they did it to him." Taking turns teaches the rights of all. Hearing about other children's mothers and daddies, other children's lives and interests broadens sympathy and understanding. All these experiences break into his "moral realism" and compel a widening of his conceptions and identifications to include others.

Gesell³⁷⁴ says that five-year-old children are sometimes aware of deceit or cheating by others, and may begin to try out such deceptions for themselves. He warns that, depending upon how these instances of behavior are handled, the child begins to form favorable or unfavorable ideas of honesty. Considered cute or made profitable, the child naturally continues to use such methods. Condemned and found unprofitable, he abandons them unless his life is too bore-some or his emotional needs such that even strong treatment only encourages the wrong behavior.

Entrance to School Teaches Much. Upon entering school, children undertake a job which in many ways resembles the work they must do as adults. Definite beginnings in a sense of responsibility should have been made at home. Whether or not they have, the child in school must begin to take responsibility if his development is to be normal. His attitude toward work as such, his sense of the worthwhileness of effort, as well as his sharing of school property, his sharing of teacher's time and attention, and his learning to "team" up with his peers are all in the making from the day he enters school. The school age, too, is a period of learning how to accept defeat in games like a sportsman; of learning how to react to failure as a challenge to greater effort; of learning not to cheat in work or play; and of expanding group participation and shared responsibilities. Although most of these lessons are continuing throughout the school years, the first three years in school usually determine the child's attitude toward school and the job of school for the rest of his school life, and often his attitude toward work for the rest of his work life. There are, of course, instances in

which children have failed completely to fit the school's idea of responsibility yet have made brilliant successes of their work lives (Edison was supposedly one) but these are the exception rather than the rule. Every effort should be made in the early grades to help children develop a sense of responsibility to work.*

Schools Also Influence Standards of Honesty. A byproduct of the attitude of reasonable willingness to do a job which must be done whether you like it or not is the development of honesty in relation to work. False systems of merits and demerits often teach children to work only for artificial ends, or even to achieve an end-result by dishonest means. Hartshorne and May,⁴⁴⁵ in carefully controlled experiments, found that from 35 to 60 per cent of the children studied were dishonest in their schoolwork, the percentage of dishonesty increasing with the importance of the assignment and the pressure on examinations leading to marks on report cards.

These authors also found in a study of responsibility and service of school-aged children to their groups or local communities, that the friends a child goes with, his classroom code, the nature of school adjustment, and the example of his parents are definitely related to children's sense of responsibility and their tendencies to be of service. Age, intelligence, sex, and emotional conditions, however, have little to do with such tendencies. Therefore, we see that schools, homes, and associates contribute the determining factors in development of moral standards. Even age and intellectual superiority are less important.

Ways to Aid Moral Growth During School Years. Hartshorne and May, as a result of their studies, say that the teaching of cooperation, charity, and self-control requires (1) careful planning of situations to which these activities are the natural and successful response, (2) provision for building a group morale which supports the desirable mode of conduct, and (3) increasing complexity and difficulty of situations in order that general principles may emerge and be brought into play for the guidance of conduct and the integration of behavior.⁴⁴⁶

Parents and teachers can encourage neighborhood and school

* This does not mean William James' "daily exercise of the faculty of effort," since the idea of learning to work by doing disagreeable chores is not popular today. Progressive education attempts to make children work because the work itself is intensely interesting. Unless this is overdone, it seems to produce results, as is evidenced by the atmosphere of happy busy-ness of the best progressive schools. Thoughtlessly done, however, it only teaches children that unless you happen to be interested in something, you could not possibly be expected to exert any effort to accomplish it. This is a false lesson, since daily life requires of everyone the accomplishment of many tasks which are not especially interesting, but which, for the sake of a reasonably efficient life, must be done.

projects which make it possible for children to work in groups for the good of all. Clever principals of "tough" schools have long realized the efficacy of turning the group energy toward rebuilding playgrounds, draining neighboring swamps, cleaning up alleys around the school, and in other ways taking responsibility for the appearance and usefulness of school, school grounds, and immediate neighborhood.

Respect for Property an Important Lesson in Early School Years. Sharing of responsibility for property used by all is an excellent lesson not only in responsibility but also in respect for property. One "moral" lesson which every child of early elementary age (six to ten) seems to have to learn is not to "steal." Scarcely any child of this age fails to have at least one experience in taking something which does not belong to him. This is so frequent at age six that Gesell³⁷⁷ in describing honesty in six-year-old children says (p. 420): "His needs are strong. Sense of the limits of ownership is weak. Thus takes what he sees and wants, regardless of who owns it." At seven, Gesell describes as typical behavior (p. 420): "Takes home school pencils and school erasers." At eight: "Child *needs* what he wants. If not provided for may take money, which is now meaningful in terms of what it will buy." Apparently at least one specific yielding to temptation in the primary school years is necessary to teach the child the requisite self-control in the face of temptation.

This "stealing" is most often in the form of taking money from the parental purse. Children see their parents shop, exchanging the magic coins for things desired. Children are usually given occasional coins with which to effect the exchange for coveted objects. These coins come from the family purse. The occasion almost inevitably arises when the child, more than half aware that he should not, takes a coin or several coins from this seemingly exhaustless source. He usually sneaks behind people's backs in doing this because he has usually been forbidden the amount that he desires. Often, however, the taking is purely an impulsive response to an unexpected chance to do it. As a rule these coins burn the child's pocket because he realizes that they should not be there. In this case, they are spent at the first opportunity for chance objects rather than for something long coveted.

Probably the most effective way to deal with this is to explain where the family money comes from, that there is only so much of it, that it must go for food, clothes, rent, and the like, that, although mother and father seem to have no end to what they spend, most of what they spend is for the family. Therefore, no one in the family is free to take money for special things unless every-

body understands; otherwise there may not be enough money for necessary things. Most children do not know these simple facts about family finance. The first misappropriation of money may be the time to teach them.

Calling the child a thief, and announcing that he cannot now be trusted is the last thing that should happen. Children's reputations for honest dealing should be carefully created and consistently maintained. This does not mean that a gullible adult should let a child "put anything over." It does mean, however, that the quickest way to make a thief of a child is to give him that reputation so that he will conclude that he "may as well have the gain as the name."

This stealing from the family purse is in many ways the same as stealing chalk from school. The purse belongs to everyone, and, therefore, not to anyone specifically in the child's mind; the chalk and other school property is no one's because it is everyone's. Lessons in "mine" and "thine" learned so painstakingly in the preschool period are not effective when property held in common is concerned. An understanding that property owned or used by everyone belongs to everyone, rather than to no one, is a definite next step in learning about property rights. Some people never learn it, as is evidenced by careless use of public parks, school property, and city streets. Protection of property held or used in common, and respect for it as shown by caring for it as if it were one's own, is a rather advanced stage of "property morality."

The first stealing offenses of children from five to ten should be regarded as "mistakes." "It was there. It was not yours. You made a mistake and took it. We'll return it"; or, "we'll pay for it." This should not be done, however, with money lightly given by an adult to the child, but with money from the child's allowance or from money which he earns. Some children need second or third offenses in order to clarify the fact that even though the object is very tempting, one's hand does *not* reach out for it. To make a shy child go through the process of returning an object to the clerk of the store, if that is where the object was taken, may be to subject him to a too painful emotional experience.

Without a definite punishment from an adult most children whose growth of conscience is progressing satisfactorily learn that the pain of a guilty conscience is too sharp to be agreeable. The memory of it simply checks any future temptation. Such children have an adequate, occasionally a too burdensome, super-ego or conscience. Other children are more "hard-boiled." They need pain from external situations because the pain of conscience is inadequate to prove a future check. These children should "face the music" of

returning things. A rare child needs to replace something before his classmates; but such public discipline is almost without exception unwise, and the teacher who protects a child from public censure, making it possible for him to restore the property or rectify his error in private, often wins a loyal friend. Real understanding of a child's situation under such circumstances usually seals a pact between the child and such an adult—a pact which serves to strengthen moral behavior for that child for the rest of his life.

Continued stealing, of course, requires special attention since it indicates that something is basically wrong. It is only the first two or three offenses that can be considered in the category of learning lessons about property. The great majority of children need only two or three repetitions of property-rights lessons in order to learn the necessary judgment and control. Offenses repeated through a long period of time indicate either that the development of conscience is defective, or that more basic lessons in self-control are needed, or that the stealing is satisfying some deep emotional need. Particularly in the latter case professional help is needed, and should be sought whenever such help is available.

Strength of Temptation Differs for Different Children.

Any adult who wishes to help children in these early elementary-age experiences with learning about the property rights must realize that temptation differs for different children in the same situation, or for the same child in different situations. If the adult himself is to demonstrate what we have discussed earlier as mature moral judgment, meaning an understanding of extenuating circumstances and a tolerance of different individual situations, then he must deal with children in terms of the circumstance, the strength of the temptation and the child's motive.

For example, there is evidence that the temptation to steal is greater for underprivileged children on the one hand because they have less, and is greater for overprivileged children, on the other hand, because they are spoiled and have developed less strength of self-control than have middle-class children.

It is more difficult for children of underprivileged homes to learn property rights than for children of average homes. Because of the lack of individual towels, drawer space, playthings, even clothing, the child has little opportunity to get a clear-cut conception of "mine" and "thine." Every child must learn this sense of possession, and must learn the difficult lesson of keeping his hands off those things which belong to others. But circumstance makes the lesson much harder for underprivileged children.

We see the middle class child learning "This is Daddy's book.

You must leave it alone. Here is your book. You look at your book. Leave Daddy's alone." "Here is your toothbrush. We'll hang it here where you can reach it. And your towel here." "Here is a brand new dress for you. You must learn to take care of it because it will be your very best dress." These lessons are much easier in homes where children have possessions of their own and where there is adequate space to permit proper care of individual possessions. In contrast to the middle class child's situation imagine the underprivileged child who uses the family towel, has no toothbrush, no special dishes, no books, few if any toys. He inherits his clothes from older siblings, or from children in some other family. And even these do not belong to him since any child in the family who needs the underwear or sweater gets to wear it for the day. Children in such a situation can learn little of individual property rights. They have little practice in the feeling of ownership, and, therefore, little experience with how it feels to cherish something. They know little of how it feels to have something which really belongs to them damaged or stolen, and, therefore, little sense of guilt when they damage or steal. Laid against this, they have so wide an experience in using everything within reach, that they come to feel a right to use whatever is at hand. It becomes difficult, then, to resist the urge to take an orange from the fruit stand in the neighborhood, or to confiscate a pencil lying on a classmate's desk at school; or later, to feel a sense of guilt over snatching a purse from under someone's arm or out of a pocket.

Schools have an obligation to the underprivileged child to sharpen his sense of "mine" and "thine," to develop the feeling of personal property owned and cherished by each of us—"the book I use this year," "the pencil which is mine," etc.

Overprivileged children are also handicapped in the learnings about property rights because: (1) They have so many things that the value of any one thing remains at a minimum. When possessions are abundant the keen feeling of cherishing any given thing may remain undeveloped. Therefore loss or damage carries no genuine pain to some wealthy children because replacement is too easy. Like the underprivileged child, but from another cause, the privileged child finds it difficult to develop the sense of guilt which should be felt when one damages or appropriates the possessions of another.

(2) Privileged children have so many things, and are likely to be waited upon and indulged so much that they do not develop self-control. Self-control is necessary if one is to keep one's hands off something which belongs to another, no matter how much one may want it for oneself. When there are few lessons in self-control and

few opportunities to exert genuine effort anywhere in one's life, the ability to resist temptation remains undeveloped. Most private schools dealing with overprivileged children find it necessary to emphasize the importance of caring for property, and to give definite training in effort and self-control so that these children will be able to resist the urge to appropriate what does not belong to them.

(3) Some stealing on the part of overprivileged children, especially the stealing of automobiles by adolescent boys, can be traced to another factor inherent in the lives and training of these children. Overprivileged children have an exciting, gratified life. They have many planned surprises, extravagant gifts, much concentrated excitement and fun. For some of these children the appetite for excitement becomes overdeveloped, while, at the same time, the means of arousing excitement become exhausted. Many such children have the feeling that they have been everywhere, seen everything; situations and things which offer great thrills in adolescence to the less sated child are an old story. Stealing a car and being chased by "the cops" is a real thrill. Fortunately, many parents and teachers of privileged children recognize this danger, and manage to build self-control and respect for property and law, while at the same time they contrive to distribute the thrills so that the appetite will not become abnormal nor the possibility of fulfillment impossible as the years pass.

Causes of Stealing Are Varied. Occasional children steal because of dire physical need, as the diabetic child steals sugar. Occasional children steal because they are taught to or expected to. Some steal to gain attention or fame, as did one child who became famous as the best thief of mentholatum balm in a large city. Such children need to find fame, or status, and excitement in more wholesome ways. Some children steal, as we have said above, to fulfill deep-lying emotional needs⁴⁵³ or because of unfortunate emotional conditionings which accompany stealing. They may steal to revenge themselves on parents or companions; or because of buried conflicts and tensions that are relieved by the act. Such children should have the help of specially trained guidance workers. Most children steal, however, to gratify desires; they are too weak to resist, or too spoiled to think they *should* resist anything they see that they want.

Learning about Truth. Another Important Lesson of Early School Years. Just as children must learn "mine" and "thine" in property rights as a step in mastering clear notions about our group mores concerning material possessions, so must

they lay foundations for consistent truth telling. Children lie for a variety of reasons. One, in the preschool years, is that children of this age confuse real and imagined situations. Many of the preschool child's compromises with the truth are due to his genuine inability to discriminate between what happened and what he imagined as happening. (See the discussion on development of imagination, p. 384.) Many children lie because, although truth is more obvious than falsehood, they observe that adults and other children sometimes lie. When parents consciously or unconsciously lie to others or to the child they can expect him to follow their example. Lying is a natural sequence of stealing or other misbehavior. Many children lie to avoid punishment, especially if punishments given are over severe. Parents and teachers, when discovering a child doing this, should evaluate the severity of the punishments they are using with him. If the punishment is too severe, it should be modified. If, however, it is found to be reasonable, the child may need to learn more courage. Occasional children simply stumble by chance upon the possibility of lying rather than telling the truth. Every child requires certain experiences with untruth in order to clarify his ideas of what truth is and why one clings to it. Probably no school-age child escapes some sort of experiment with truth-telling.

Gesell¹³⁷⁴, p. 419ff. reports that his four year olds tell tall tales, often with little basis in fact; that age four is the peak age for imaginative verbalization. At five, the child continues to tell fanciful stories and exaggerations, but is beginning to distinguish between the real and make-believe. At six the child is likely to deny a fault if questioned directly, though some children are very "honest" verbally. Most of them are likely to cheat at games in order to win. By seven the child has developed a concern about the wrongness of lying and cheating, especially to friends; they are quick to tattle about any break of ethical code in others. At eight there is a certain type of social expansiveness which may lead the child to exaggerate, but there is also a genuine sense of the need to be truthful about really important matters.

Exaggerations of truth characterize some adolescent children who are driven to boasting or "tall tales" in order to create excitement or to impress other people. The greater the adolescent's feeling of inadequacy the louder his boasting becomes. Young people who fail to attract attention to themselves or to create what they feel to be a proper impression resort to spinning yarns about their possessions, their ancestry, their accomplishments, or their abilities. Some adolescents do this so often and over so long a period that they appear to be inveterate liars. When this behavior persists it is

a signal that the young person needs to be helped to achieve status, to find security or attract attention by more constructive means. Some of them need to curb their appetites for the wrong kind of excitement by learning where and how to find the right kind.

As in their experiments with property rights, it is important to deal wisely with experiments in truth-telling. Jumping too quickly into accusations of "You're lying—now I can never trust your word again," leaves as serious consequences as the accusation "thief." Nothing promotes lying faster than to feel that one has no reputation for truth. However, standards for truth-telling must be maintained. The child must appreciate the seriousness of lies, and must have it understood that truth alone is expected from him.

Teasing and Bullying. Teasing and bullying is another type of behavior characteristic of many children in the elementary school age which must be dealt with wisely if the moral development of such children is to be desirable. Preschool children often whine or tease their parents to gain some end. Adults should see that such teasing and whining profits the child nothing, and should, whenever possible, give him what he asks for nicely. Among school age children teasing and bullying of other children may result from the example of adults or peers. Occasionally it is due to illness or fatigue which "sour" the child's disposition. Often it is simply the danger signal of idleness. Much of what seems to be cruelty to animals or to other children, for example, may simply be curiosity or experimentation with things or with standards when more constructive occupation is lacking. Bullying may also be due to jealousy, or may serve as a compensation for feelings of inferiority. In any case, a child who persistently "picks on" or bullies younger or weaker children needs special attention from guidance experts. For the normal child the gang age is a period of learning to face force or fear with courage; learning to fight when necessary, to struggle for what is desirable without bullying or selfish aggrandizement.

Effect of Adult Moralizing. Many adults attempt to deal with stealing, lying, cruelty, and bullying by constant moralizing. They read no story to the child without pointing out the moral. "Good" children, they moralize, win rewards; "bad" children suffer awful consequences. Some children learn to hate stories and reading because no story is left a good tale in itself, but must be used by the overconscientious adult as a moral. Other children as a result of this treatment become compulsive in their incessant self-questioning as to whether they did right or wrong, were good or bad. Occasional children worry themselves into a serious emotional state because they react with too conscientious self-questioning and an overacute

sense of guilt. Most healthy children, however, learn to disregard such moralizing by negative adaptation—like the clock ticking, they become so accustomed to hearing it that they do not hear it. In any case, moralizing when overdone has negative or harmful consequences.

One writer⁵⁷¹ has recommended an evening confessional as a means of teaching the child to be "good." Morgan, a very sane child psychologist, comments on this idea as follows:

From his (Katz) own description of the method it is obvious that he is teaching the child to glory in talking about his misdeeds rather than teaching him to be good. For example, he cites a confessional conversation consisting of fourteen direct questions about misconduct.

To many of these the child responded by telling about bad things he did. Two days later the child asked his mother to question him about his misdeeds. On this occasion she asked but three questions to each of which he responded that he had been good. The next night there were sixteen questions, the child confessing to many misdeeds. What better way to teach a child to be naughty? The long interesting conversations occurred only when he had done what he glibly confessed was bad.⁷¹⁶

The problem seems to be to teach children a sense of honor within themselves without fear of police or outside forces, yet to avoid the instilling of superstitious fears or a superconscientious overanalysis of every item of their own behavior. Good religious training helps children to accomplish this. However, "hell-fire and damnation" doctrines usually either captivate aggressive children (who give full play to such ideas in imagination, yet change their behavior very little) or worry sensitive children into nervous or unstable emotional behavior. The real objectives for the teaching of morality are (1) to help children find the richness of sharing, of "loving thy neighbor," and (2) to bring about "peace within" which comes from "the good life," to teach, in other words, that "imperfection is uncomfortable in the face of perfection."

Development of Moral Judgment in Adolescence. Children from nine to twelve years of age can make excellent progress in reasoning, sympathy, esthetic sense, tolerant love, and true morality. They can learn to regard the truth, to be fair, to understand justice in more than elementary ways. With adolescence all of these concepts come to have deeper meaning as the abstractions behind most rules and principles come to be understood, and as awakened interest in other people enriches the child's feeling for the rights and feelings of others. The normally developing adolescent assumes increasing responsibility for himself, for his school job, and for participating in his school and community activities. Even though, in many communities school programs,

extracurricular activities, and increased social interests take the time of the adolescent to an extent that leads many parents to assume all of household responsibilities in order to free the child, the need for an adolescent to be aware of his responsibilities to his home should somehow be met. Responsibility for the selection and care of his own clothing, for taking even a small part in the preparation of food and in dishwashing, for assuming the care of his own room seems the minimum if he is to realize anything of what he owes to his family for his maintenance and school tuition. Instead of coming to assume that the world owes him a living, he must somehow learn to "earn" his living, if only by doing well the school job for which his parents continue to support him. The average adolescent's need to think for himself, and therefore, to break from parental domination, too often becomes confused with the assumption that he owes his parents nothing. When this happens, he frequently feels that he has a right to do as he pleases, being quite lacking in any realization of or appreciation for the fact that as long as his parents pay his bills they have some right to dictate his behavior. Failure to appreciate this shows immaturity in "moral judgment."

For modern city-bred children moral maturing becomes complicated by certain of our present cultural impacts. Landis expresses this as follows:^{610, p. 153}

The experience of collecting and reading more than a thousand autobiographies of college students, mostly freshmen, and of watching the course of life on a college campus has developed a conviction that the youth of today has faced more moral alternatives by the time he is twenty years of age than his grandparents faced in a lifetime.

Three influences create conditions that underlie problems of moral choice and make them of preeminent concern in the experience of the adolescent:

1. Movement is so prominent in our society that most young folk leave the neighborhood and family group early in life.
2. Change has been so rapid in all phases of experience that well-defined moral standards no longer exist; parents are often so uncertain in matters of the rightness and wrongness of specific acts that their teaching of moral precepts often either is neglected or lacks positiveness.
3. Many adolescent-youth groups exist in our society in which the codes of the new generation hold sway, there being relatively little chaperonage by adult codes.

Each of these conditions is in a very real sense modern and primarily a product of city life. These three influences—mobility, change, and self-sufficient youth groups—are the external circumstances that bear most directly upon problems of moral choice.

Even under these circumstances, however, adolescence should normally be a period of rapid expansion in ability to cooperate smoothly with others, in appreciation of justice and fair play, and in loyalty to associates and to "the rules of the game." It is, as we have seen, an age of great absorption with one's own self development, and a period when reactions to others is intense. Self-improvement is usually rapid, and much of its direction is toward finer and more idealized thoughts and behavior. There is, typically, in adolescence a great blossoming of idealism, a desire to reform the world, and often willingness to expend great energy in self-sacrifice. The tragedy of our contemporary situation is that this idealism and energy have until the war had so little outlet in action. Russia and China in the 1930's and 1940's are utilizing their young people, giving them a sense of being needed, and directing their energy into work channels. In the recent war young people were needed and used fully by Western Nations. It seems tragic that we had to become a war nation in order to give our young people a sense of being needed. The depression 1930's in most of Europe and all of America deprived young people of the opportunity to do work of economic value. We were very slow to find substitutes, although the Civilian Conservation Corps proved one helpful solution for boys. It seems a great loss that Society found so little means in the 1930's of developing a constructive "morality" among our young people during this decade. It is little wonder that so much of this idealism and energy, denied constructive outlet, either remained penned up in the young people, there to find expression only in daydreams about movie stardom, or burst out in socially destructive crime.* As this book goes to press we are again in severe danger of allowing ourselves to fail in the use of youth.

PSYCHO-SEXUAL DEVELOPMENT: THE EROTIC ASPECTS OF HUMAN RELATIONSHIPS

Sexual Morality an Important Part of Total Morality.

One of the sharpest concerns of adults about the "moral" behavior of adolescents is that over sex behavior. This is rightly a matter of concern, since learning to handle the newly awakened sex impulses offers adolescents themselves one of their major problems. What these new longings mean, how to express, and how to control them

* The average age of commitment to state prisons during the 1930's was twenty-four. State prison sentences usually meant that all means of probation and opportunities for correction of delinquent tendencies had been exhausted. Delinquency which was serious enough to be considered crime occupied the attention and energy of a tragic number of sixteen to twenty-five year olds during this period.

occupies much of the attention and energy of many adolescents. There are marked individual differences in this, however, as we shall see.

Since sexual morality is a matter of concern not only to single persons but to partners in any sexual act, and since sexual acts under certain circumstances involve not only production of offspring but the whole structure of family life, Society rightly considers sexual morality an important part of total morality. We cannot, however, understand the development of an adequate sexual morality until we understand something of the development of sex itself. Sexual development has two aspects—a physical and a psychological. Because these two are inextricably interwoven in the individual we have come to speak of psycho-sexual development. Reference to the chapter on physical growth will review the strictly physical aspects of sex. We turn now to the more psychological aspects of that development.

Psycho-Sexual Development Begins in Infancy. At one time⁴²⁶ the child was considered to be "innocent" of sex or sexual urges until adolescence, at which period in his life the development of his sexual anatomy, being rapid and clearly evident, led writers to suppose that this was the birth of sex. The work of Freud^{349, 352} and other psychoanalysts, however, has led to the conception of infant "sexuality," and has clarified our understanding about the development of sex. We now know that sex feelings and sex attitudes, although greatly stimulated in adolescence, actually have their roots back in the earliest months of life. With this awareness, our attitude toward sex education has changed. Children are no longer "protected" from sex information, kept "pure" by the lies of stork or doctor's bag as the source of babies, and otherwise led to repress all curiosity about sexual and eliminative functions. Freud found that such suppression in early childhood often led to neuroses in later life. Sex and elimination need to be dealt with frankly throughout life as natural parts of the life process. Correct names for genital organs and eliminative processes should be taught as naturally as correct names for anything else in life. Evidences of infant sexuality, like curiosity about the child's own body or the bodies of the opposite sex, manipulation of his genital organs (indulged in by nearly all children at some time or other*), interest in his own eliminative products, should all be dealt with frankly and honestly.

* Meagher, J. F.⁶⁸¹ after an exhaustive study of masturbation says: "Infantile masturbation is practically universal; in adolescents, it is the rule with boys, and is very common in girls; . . ." . . . "Sympathy and encouragement are great aids to the patient, whereas an antagonistic attitude, censure, and punishment are usually harmful."

Sexuality in Infancy and Preschool Years. The child's interest in his own body increases rapidly from six to twelve months⁴⁶⁰ and is a by-product of general curiosity, increasing skill in use of hands, and the birth of self-awareness. This was discussed in Chapter 8, page 317f. Between twelve and twenty-four months the child in our American culture usually has a great deal of attention paid to toilet training. This was discussed earlier. For a more complete discussion see Rand et al.⁸²¹

With great emphasis during these years upon self-care, of which dressing and undressing are important parts, many children find it fun to undress and run about free of clothing. One study²⁷¹ has given us insight into the age at which children in our culture develop attitudes toward the body. In a group of superior preschool children the investigator found that young children showed the same attitude toward the body undressed as dressed, although in some cases they showed an emotional attitude toward the body. The younger the child the less interested in bodies he was. Hence we see that young children lack self-consciousness about nudity. They become "modest" only in the later preschool years. Modesty must, of course, be taught, since without it older children run counter to the group mores and into trouble. But to attach shame to the naked body, to ingrain attitudes of horror and "nastiness" is to lay a foundation for inhibition and repression which bodes ill for successful marriage. Occasional boys who have been badly handled under such childhood circumstances become the sexual perverses who get sexual pleasure from exhibition of the penis.

Sexuality in Elementary School Years. Nearly all children between five and ten encounter some episode or episodes of sex play.^{377, 609, 865, 931} Investigation of each other's bodies, handling of each other's genital organs, playing "father and mother" or the child's clumsy attempt to imitate the adult sexual embrace are almost inevitable, unless the child is so overprotected that he meets no other children. Even though a boy has had careful sex education at home and hence knows what his little sister looks like, he has a curiosity to discover if all girls are the same. Or children, in an urge to play adult, not only play other aspects of adult housekeeping, but the father-mother game, too. Hospital is always

Davis, K. B.²⁶¹ reports that 67 per cent of the college graduate women in her study had masturbated at some time in their lives.

Landis, C., et al.⁶⁰⁹ report that 54 per cent of the women they studied reported having masturbated at some time in their lives, and they found no differences between the normal and the psychotic women in the number who had masturbated.

Hamilton, G. V.⁴²⁹ reports the same for 74 per cent of a group of married women studied.

a favorite game; playing that a baby is being born is a natural enlargement on the idea. Children must, of course, learn that you do not play these particular games, and should be helped to participate in other kinds of play. But we must be careful not to deal with such situations in a way which will cause the child to be shamed, to feel ostracized, or "nasty", since when these feelings result children may be enticed into continuation of such play for excitement and defiance. If this is not the result, we may find that we have inhibited impulses which will be necessary to the enrichment of marriage. Parents often worry acutely about these episodes, thinking that the child must be displaying precocious and therefore dangerous sexual development. They have often heard, too, that masturbation or other sexual behavior in childhood will lead to insanity. There is no evidence whatever that any sexual experience in childhood in itself causes insanity.* There is evidence, however, that sexual episodes in childhood sometimes lead to such unfortunate treatment by adults that the resulting repressions and emotional conflicts produce insanity. Sane treatment by adults is imperative if unfortunate results are to be avoided.

Children who persist in sex play after the initial experiences with it, like children who steal after the natural lessons have been taught, evidence by this fact that they need special help in straightening out attitudes toward sex and toward the adult world in general. This is particularly true of children who have sneaky or "dirty" attitudes. However, the great majority of children soon forget sexual episodes if their parents "keep their heads" and deal quietly and frankly with the reasons why such behavior is undesirable while at the same time giving any sex information which the child seems to need at the moment. It is possible, of course, to be too frank, or to be fearful that one is not telling the child enough. Too much of the wrong kind of frankness about sex from misguided parents often lends an abnormal emphasis to the topic which reflects in the child's continued preoccupation with it.

Farm children have an easy and natural opportunity to learn about sex and to accept the naturalness of the eliminative processes, since they are exposed to animals and have the responsibility of caring for animals in all fundamental life processes. City children are less fortunate. Summers on farms or possession of such pets as are possible in cities help. Wholesome experiences with animal reproduction do much to keep children's attitudes healthy.

Apart from the sexual experiences which many children have with each other there are the rarer episodes precipitated upon

* "The occurrence of sexual aggressions in early childhood apparently does not predispose the individual toward the development of a mental disorder in adult life." 609

children by adults or older children. Some older child, or more often, some perverted adult may subject a child to sex attack or enticement. Either boys or girls may be the subjects of such experiences, particularly in underprivileged neighborhoods where crowding is great and where the dregs of humanity tend to drift. Any child in any neighborhood may, however, have such an experience, either in the city or the country. Although these are, fortunately, rare, they are of such importance to the child's later development when they do occur that we cannot neglect them here.

Far more important than the experience itself is the way in which it is handled when it becomes known. Even in instances of cruel and thoroughly frightening attack proper handling can bring the child through with a minimum of psychological scar. Landis,⁶⁰⁹ in a careful study of sex development, says that making a trauma or permanent psychological wound of early sex attack or experience is disastrous. Over warning or anxiety to prevent such accident or experience is still worse. Usually such experiences occur without knowledge of the parent and without trauma to the child then or later in sex life. Children can survive severe psychological experiences, and are sometimes even stronger and saner because of the philosophy developed through the experience. This is an area in which careful handling is necessary. Just as a child who has a serious physical illness or accident needs a doctor's care, so can a child who experiences such severe psychological situations as those involved in sexual attack be helped through the care of a psychologist or psychiatrist.

Gang Age Experiences Can Contribute Much to Moral Judgment in Sex. The gang age has a certain function to perform in sex development. Children need to learn that ugliness and sordidness exist in sex, as they do in the other moral areas of lying, stealing and profanity. But they need to learn, too, that each individual must build his moral concepts upon a satisfactory basis in spite of this. Occasional experiences with the uglier sides of life can and should be utilized to give the child a sound sense of the realities, so that later, when he no longer has his parents and teachers to lean on, he can face whatever is necessary. Immunity against "wrong doing" seems for most human beings to be developed only through exposure to temptation and through conquest of it. The person who is "pure" because he has been so protected that he knows nothing of temptation must go through life continually protected if he is to remain "pure." The person who really knows how to meet temptation and who can trust his strength is the person who has tested that strength.

Whatever the child's experience with sex, his adolescent and adult life can be normal and fulfilling only under one condition.

He must *not* grow up with the feeling that sex and everything connected with it are nasty and dangerous. Many misguided adults make of sex a dangerous dragon which lies in wait to destroy the child. The "we can trust you, but we can't trust your sex impulses" attitude may either fascinate the child, or it may throw him into a panic of fear. The boggy feeling about sex makes of it a demon apart from the child and beyond his control. No child should feel sex to be greater than he is; he should know always that, hard as the struggle may be, *he* can always be the master of what is, after all, only one of his impulses. He must realize to the full extent of his attitudes and feelings that sex under the proper conditions is one of life's greatest fulfillments. He must know this, and have the life-long training in self-control, the life-long development of deep consideration for others which will make it possible to take *his* sex at the time and under the circumstances which will fulfill rather than destroy his life.

Sexuality in Adolescence. The rapid development of sexual organs, the appearance of secondary sexual characteristics, and the interest in the opposite sex which follows these phenomena reveal the "sexual awakening" of adolescence. As we have said, these evidences of sexuality at adolescence are so marked that, until recently, they have been considered the beginning of sexuality. We now know that the sexual phenomena of adolescence are only a step in a long sequence; they have been preceded by many important physical and psychological growth phenomena which bear directly upon the nature and direction of sexual development at adolescence.

Marked Individual Differences Characterize Adolescent Sexuality. We cannot deal intelligently with adolescent sexuality, however, unless we understand the wide differences in age of development, and in intensity of sexual impulses. The range of age of biological maturation has been discussed in Chapter 7. We have an equally wide range of intensity of sexual impulses. Some people have very intense sexual urges; others have little drive in this direction. The scatter along a normal probability curve characteristic of other capacities is applicable here. Most people cluster around a middle tendency, having fairly strong sexual impulses yet finding control of sexual behavior not too difficult. The average girl, for example, would be one who menstruates at around thirteen and one-half years of age. She would awaken to an average interest in boys at an age when she would have as much social experience to deal with the new impulses as would the average girl. She would have an average intelligence and average training in moral judgment, would be, thus, in possession of average self-control, an average sense of proportion on present-*vs*-future, and would display

an average consideration of others. The average boy would mature around fourteen and one-half to fifteen years of age, and would have an average of the traits listed above.

Some boys and girls mature two to three years earlier than this. These youngsters may have a somewhat fuller sex impulse than average children.* Whether or not they do, we can assume at least an average sex impulse which strikes them at an earlier age when there is less social experience, less intellectual maturity, less self-control and other aspects of moral development.

Thus we can see several types of young persons emerging here, each with a somewhat different problem in control of sex impulses. One type is the young person of rather late biological maturing, with adequate early training in self-control, with rich sublimatory interests, and varied social outlets. For him chastity is no problem. If the young person is of a second type, namely a person of early (and, therefore, as a rule full) biological maturing, and if he possesses also rich sublimations, excellent self-control and wide social outlets with the accompanying self-confidence which these things mean, chastity is possible, although it is in some cases a pressing problem. But if he is of a third type, namely, the early-matured, not too well self-disciplined young person, especially if he is a person for whom social and emotional gratifications in other directions are lacking, chastity is, if not impossible, at least a completely absorbing problem.†

* The point is established clinically but not as yet by child development studies.

† Bromley and Britten, after an extensive analysis of college youth, say that among the girls studied, about 12 per cent are Victorian-virginal, completely unawakened sexually and accepting parental standards without question; about 24 per cent belong to the "wait-for-marriage type," who have decided, either through idealism or prudence, to defer intercourse until after marriage; about 37 per cent belong to an ill-defined type which is technically virgin but approves of intercourse outside of marriage under some circumstances so that its future is uncertain; about 11 per cent called "the loving" have gone the whole way with sex because they have placed the claims of a particular love relation above those of any conventional code; about 9 per cent are "experimenters" who have dared to indulge in sex because of their ideas or emotional maladjustments, in a rather serious way; about 3 per cent are "sowers of wild oats," who have indulged rather promiscuously after the fashion of the traditional male; about 2 per cent are homosexual; $\frac{1}{2}$ of 1 per cent are married and $\frac{1}{2}$ of 1 per cent are "remorseful."

Among the boys, 44 per cent are uninitiated sexually; 7 per cent are homosexually inclined, with or without experience; 14 per cent are pragmatists, who indulge sexually but with an awareness of the practical results of their behavior; 7 per cent are "discriminating: inheritors of the epicurean tradition"; 7 per cent are "romantics," who have also had sexual experience but are much influenced by their ideals; 21 per cent are "hot-bloods," whom the authors described as "inveterate hunters," who have had relations with from five to fifty girls each.¹⁴¹

Counselors must differentiate between these types of young people if they are to be of genuine help. To the first type, sex *per se*, being only a slight problem and often of not too much interest, "frank" talks about sex problems seem, if not embarrassing, certainly of slight interest, or even irrelevant. To the second type, sex information and some viewpoints on how to utilize wholesome work and recreation to keep sex problems at a minimum, are helpful, but great emphasis upon the subject is unnecessary, or may even prove the extra stimulant which makes their problems really acute.

There is, unfortunately, also the third type, namely, the highly sexed, not too self-controlled young people who think sex, talk sex, act sex in such a way that they find any other subject uninteresting, any other activity "tame" and babyish. These young people are a problem to themselves, and not infrequently a menace to their peers. They are the ones who start circles of sex talk or even of sexual activity. They are the ones who often tip the balance for the second type, from wholesome preoccupation with varied activity to unwholesome preoccupation with sex ideas and activities. These young people need fearless frankness and strong inspirational guidance. Threats of venereal disease or illegitimate pregnancies are futile. There is usually no venereal disease in these circles of young people, although for boys the prostitute problem may be a real one, and they are far too self-confident about their knowledge of contraceptives to think there is any possible danger from this source. It often helps them to learn from authentic sources that no known contraceptive is "sure" and at the same time safe for the delicate tissues of the genital systems. The only reasonably sure and safe contraceptive must be prescribed and fitted by a reliable physician for the particular person who uses it.^{322, 956, 1024}

Skillful guidance people find that the most constructive approach to such young people is to help them to see the difference between the physical expression of spiritual or psychological union and mere gratification of physical sex tensions. The one is richly fulfilling if it can take place under conditions which make for physical comfort and complete psychological assurance. The other, mere release of physical tensions, soon becomes a drug which creates its own increasing tensions until, in time, even the physical tension cannot be released. Nothing is more pathetic than a person who has played with the physical aspects of sex until he has worked himself into a state where orgasm becomes impossible, tumescence cannot be released, and the physical and psychological preoccupation with sexual tension makes a nervous wreck of him.

Most young people who play around with the physical thrills of sex divorced from psychological meaning (viz., a deep and enduring affection) do one of two things. They either come to be disgusted with it and abandon it as meaningless and empty, in which case they rob themselves of any possible success in the physical aspects of marriage. Or they become so preoccupied with physical tensions and releases that they place themselves in time in the position where tensions can no longer be released with consequent nervous disaster. Most young people of good family and training cannot long play with physical sex alone. The girl who gives her body without love has been too deeply conditioned in most cultures of the western world; in time it occurs to her that this is what is meant by prostitution, and she gives it up. Girls who have had this experience need careful and constructive help if they are to "pull out" of such experience and make good wives and mothers.* The boy who encourages girls to such behavior, but who is well-conditioned through good sex education, usually soon discovers that sex snatched in the back seat of an automobile or under a bush in the park does not really relieve physical tensions satisfactorily, nor does it provide the thrill that he really wants. Experimentations in physical sex alone seldom last long for well-trained young people, and are probably never attempted by three-fourths of the girls and half of the boys.

Sexual expression within the confines of love is quite a different problem. Many guidance people feel that much of the sexual experience of young people outside of the bonds of marriage is grounded in the rationalization, or perhaps the reality, that the partners love each other. A very high percentage of the premarital sexual experience of girls occurs with the boy they are engaged to and firmly believe they will marry. Under these conditions there is no sense of prostitution, but only the guilt feeling of "sin," or the dread of pregnancy.

In many instances, however, this guilt feeling or this dread prove sufficient to spoil the complete surrender and relaxation necessary to genuinely fulfilling sexual embrace, with the result that a considerable proportion of these seriously-in-love young couples give up the practice.† If they give it up with an understanding of the reasons why it is not completely fulfilling, or of why it may even leave highly keyed, ungratified tensions in its wake, they usually

* See Bibliography.^{297, 298} Both of these books are extremely helpful to adults who work with such young people.

† One of the most helpful pamphlets available is Banning, Margaret Culkin, "The Case for Chastity" published and distributed by *The Reader's Digest*, August, 1937.

modify petting practices and occupy their time together in such a way as to avoid sex tension. In the end these young people may experience a complete and fulfilling marriage. If, however, the young couple give it up under the delusion that because they do not find complete gratification they "are not made for each other," one of two things happens. Either they break their engagement, leaving the girl no longer a virgin and with all the problems our culture has conditioned young people to feel over this situation, often causing disaster when her eventual husband finds it out. Or they marry from a sense of guilt. If they do this, there are certain cases in which the original love asserts itself and the earlier unfortunate conditionings built around the physical sex experience break down, resulting eventually in a complete and satisfying marriage. In many cases, however, the earlier unfortunate conditionings persist, and the marriage is a failure.

SEX EDUCATION

General Principles. The sexual aspect of morality assumes such importance that much has been written about how children should be educated in this particular aspect of their lives. It is generally conceded, as we have seen throughout this book, that such important feelings and attitudes as those concerned with sex are molded at home by parents in a more permanent and deeply rooted manner that can be achieved by any other person or agency in the child's life.* In discussing psycho-sexual development we have referred to methods by which adults should meet the various aspects of psycho-sexual development, particularly when the child's developing sexuality comes to the surface in overt behavior which would come to adult attention. We have warned against shock or disgust as an adult reaction and against leaving the child with a sense of guilt, horror, disgust, or fear of sex. Continuing control,

* "Education does not take place by explicit inculcation but rather by the influence of the surrounding cultural environment on the developing mind. Thus, the child learns the principles of caste, rank, or clan division by the concrete avoidances, preferences, and submissions into which he is being trained by practical measures. A certain ideal is thus impressed and by the time the sexual interest begins to act, the taboos and the inducements, the forms of correct courtship, and the ideals of desirable matrimony are firmly established in his thinking. This molding and gradual indoctrination of ideas is not done by any mysterious atmosphere but by a number of well-defined concrete influences. In this way are created the categories of decent and indecent, the avoidance of forbidden relationships, the orientation toward certain other groups, and subtler tones of feeling toward the mother, father, sister, and brother."⁶⁰⁹

In this study the authors report that inadequate sex information caused more trouble than adequate information given from unfortunate sources.

widening sublimatory or socially acceptable expressions for sexual thoughts and feelings, and increasing understanding of what sex is and how its functions are constructive measures to be achieved. All lessons in self-control (without blocking or repression), all growing consideration for others and development of other aspects of moral judgment contribute to sound sex education.

Children should acquire factual knowledge about sex as they have need for it. Proper names for eliminative products, for genital organs, and for the sexual act, for menstruation, and other sexual realities should be given soon enough to protect children against using "gutter language," or other false substitutes. One of the chief reasons for this is that scientific names are free of the attitudes of nastiness or sneaking which inevitably accompany the other names. Adolescent children should have some concrete knowledge of the anatomy and physiology of the sexual mechanism of their own sex and of the opposite sex. Without such basic facts the young person is handicapped in his social and emotional experiences, being far more likely to make mistakes through ignorance than through knowledge. We must remember, however, that possession of factual knowledge is only a minor part of an adequate sex education; proper attitudes and wholesome feelings about this realm of life are vastly more important than facts alone. The ideal, of course, is possession of both facts and well-educated feelings.

Sex Education of Preschool Children. We have already discussed the necessity for dealing with the usual evidences of sexuality in infants and young children in such a manner that harmful feelings do not result. Infants should not continue to manipulate genitals as their interests and manual skills widen beyond their own bodies. If adequate routines and ample play materials are available, exploration of one's own body tends to slip into the background of attention and interest unless dealt with so intensely that it becomes fixed in the child's attention and develops into a battleground between him and his parent. Questions about where babies come from are natural if a new baby appears in the family or neighborhood, or may stem from a normally inquiring mind that wants to know, "Where did I come from?" These questions deserve an honest answer in simple language.* Intelligent preschool children nearly always ask at some time, "What is the difference between boys and girls?" This is a perfectly natural question in a world where people are divided into two obvious groups which dress

* The Child Study Association, 221 W. 57th St., New York City and The American Social Hygiene Association, 50 W. 50th St., New York City, have pamphlets which help parents to answer sex questions for children of all ages. See also Chesser²⁰⁸ Strain,⁹⁵⁸ Swift,⁹⁷⁷ and Todd.¹⁰⁰⁷

differently, do different jobs and must be spoken to differently. (Note any three year old's difficulty with "him," "her," "he," "she," "Mr.," "Mrs.," "Yes Mam," "Yes Sir.") These, and any other questions should be answered without embarrassment, and with complete honesty. Otherwise they will assume an aura of "different-from-other-questions," with the result that children will wonder and think about them far more than they do questions not singled out by their parents as embarrassing and worth evasive answers. Answered quietly and adequately, they slip into the category of answered questions which can be forgotten about for the time being.

Psychoanalysts have assured us that children accurately informed about basic facts of sex have no need to indulge in phantasies about the origin and birth of babies, or about the relation of their parents in the sex caress. Only children who are deprived of such knowledge indulge in persistent phantasies centered around sex.

These questions about origin of babies and differences between boys and girls are, however, only an expression of the child's need to know facts. Far more basic to the child's psychological well-being, as we have said, are the attitude toward sex which he should already have developed. He should have survived infantile masturbation, leaving it behind in the natural course of his development. He should have established regular and acceptable habits of elimination and should have developed satisfactory attitudes toward elimination and eliminative products. He should have accepted and adjusted satisfactorily to younger siblings in his family, having learned to share the love and attention of his parents.

Questions Which Should Be Answered for School-Age Children. With entrance to school the child inevitably meets other children with all the differences in these practices and attitudes which any group of children represent. A child with a sound sex education to this point is not only not likely to be swung aside into undesirable practices and attitudes, but may prove a wholesome influence to other children less fortunate than he is.

By the time children enter school most writers think children should have adequate words for the eliminative processes, should know the true origin of babies, and should be familiar with the differences between boys and girls. Adolescents should understand the facts of menstruation and of the nocturnal emissions, the physiology of stimulation to tumescence in both boys and girls, differences in male and female sexual reactions, and other "basic facts."

The School's Responsibility in Sex Education. How much and what kind of sex education (meaning, usually, the limited

conception of sex education which deals with facts and knowledge) the high school or college should undertake is a question subject to debate. Even though curiosity about the origin of babies and the anatomical differences between boys and girls is pretty general before six years of age,* most writers, as we have said, recognize a "latency" period preceding adolescence. Instruction in the physiology and anatomy of sex occurs in biology or zoology classes in elementary and junior high schools, but the lessons seldom mention the human animal. Schools, as a rule, assume that the answers to younger children's questions about sex have been given, or should be given, at home. One thing that can be said for the widespread parent education movement of the past thirty years is that parents now are fairly generally conscious of the need of answering children's questions about sex truthfully and as accurately as possible. School teachers should be similarly equipped to answer simple questions about sex, and should make every effort to follow whatever attitude about the answering of sex questions is dominant in the immediate community. Nothing but confusion can result to children who receive one set of answers in school and a completely (and violently defended) different set at home. Until the majority of parents in any given community are prepared to "follow along" with modern ideas on sex education the school should move slowly.

Sex Education in Junior and Senior High Schools. The generally recognized renewal of the interest in sex which occurs with the onset of adolescence has led many educators to argue as to whether or not the public high school can afford not to give accurate information as a preventive of false information obtained from less reliable sources and with less desirable emotional tone.

Most educators now recognize that the least important part of sex education is the imparting of the facts of anatomy and physiology. The really important part of sex education, they concede, is the fixing of attitudes, habits, and emotional patterns; and they realize that this must of necessity occur in the homes and neighborhoods in which young people have spent their early childhood. Although schools can make little impression upon these fundamental attitudes and emotional reactions, educators are coming to feel that schools have a responsibility to do what they can. One school of education has stated the objective of sex education in schools as follows:

Briefly stated, the end to be attained by sex education in schools would be a contribution to the objectives of the entire school curriculum. Spe-

* Landis says that this interest is not very intense, and places the first real curiosity about sex between six and nine years of age, with a latency period from nine to eleven, and renewed curiosity at the onset of adolescence.⁶⁰⁹

cifically, sex education desires for all children the progressive development of ability to make socially desirable adjustments to the conflict between their fundamental biologic urges in the direction of reproduction, and the valid demands upon the part of our civilization for control. One would have continent, heterosexually interested and experienced young men and women, sufficiently aware of their reproductive anatomy, physiology, and emotions, possessed of attitudes favorable to control at the danger zones, and having ideals for a monogamous home life and at least a quota of healthy, happy children as are needed to perpetuate the race. Of course, one would have them free from devastating experiences with venereal disease, extra-marital pregnancies, homosexually distorted personalities and the like.*

There seems little disagreement with the belief that, rather than leave children uninformed, as numberless homes still do in spite of the parent education movement, the schools should undertake the task. Conceiving of the schools as one of the agencies concerned with "social hygiene" the White House Conference of 1930 said:

One of the essential tasks of social hygiene is to educate the individual so to direct his conduct that his sex endowment, like the other parts of his mental and physical equipment, may contribute most richly to self-development and happiness and at the same time conserve the welfare of society . . . that the average individual may have opportunity to achieve in his lifetime normal adolescence, satisfactory marriage, wholesome family life, and wise parenthood.^{1053e}

Specific instruction about the physiology and anatomy of sex in the human being is now given in occasional high school classes in biology. There are still many communities, however, in which the general sentiment of the public will not permit this. The sensible teacher will not attempt to push too far past what his community will accept in this matter. It is far better to omit pictures and discussion of human sex anatomy than to lose one's opportunity to teach at all. Much of the most important part of sex education, as has been said, can be done without a mention of the word sex or a picture of the anatomy. Attitudes toward boys, if one is a girl, or toward girls if a boy; what one does on a date; what one thinks and feels as a boy or as a girl; what controls one can place on impulsive behavior in favor of the future; how one regards the responsibilities and benefits of marriage and of parenthood; and the multitude of other attitudes and practices basic to

* *Curriculum Problems in Physical Education, School Health and Recreation.* Selected lectures from a two-week institute course at the University of Michigan, July 18-29, 1938. Bureau of Educational References and Research, University of Michigan, Ann Arbor.

boy-girl relationships and to one's role in society as a boy or a girl; these can be influenced by good teachers, and should be the real basis for a "sex education" program. Discussion of anatomy and physiology of human sex is helpful, of course, and should be undertaken wherever the sentiment and understanding of the community permit. It is imperative, however, to face the fact that not all teachers, no matter what their scientific training, are emotionally and philosophically equipped to undertake such teaching. Presented in the wrong way "sex education" can result in serious damage to attitudes and feelings. Only emotionally sound and sexually well-balanced people should be permitted to teach the subject of sex and marriage.

Wider interpretations of preparation for marriage as including homemaking skills and as related to general development of personality are usual today and are included as parts of standard curricula in most high schools.

Programs for homemaking or child care are fairly general for girls, while a number of schools include boys in such courses. Courses in psychology or personality development are also common in high schools. Sex education is sometimes taught as a part of these, or as units taught by the biology teacher, the school nurse or doctor in hygiene, or, in some schools, by any subject-matter teacher who has the right life philosophy and the right rapport with the young people. There is considerable dispute as to whether these courses should be taught to freshmen or to seniors, to boys and girls separately, or to mixed groups. Numerous experiments are under way which should eventually help us to know how, when, to whom, and by whom such courses should be taught, if at all, in our public schools. In most communities parents have been in entire sympathy with such attempts on the part of the schools, especially in cases where the school has, through the Parent-Teachers Association or Parents' Clubs, kept parents informed, or, better, asked the advice of parents as to how to proceed.*

PSYCHO-SEXUAL DEVELOPMENT: WIDER PERSONAL RELATIONSHIPS

Closely bound up with the sexual aspects of psycho-sexual development are the more humanitarian impulses of love in its wider sense. There are innumerable personal contacts throughout the life of the child other than the more narrowly sexual or the erotic relationships. These wider relationships enrich his sex relationships and are, in turn, influenced by his sex experiences. Combined with the individual's sex experiences they make up his

* See Bibliography.²⁰⁰ An excellent discussion of sex education in schools.

love behavior in its widest sense. Genuine maturity in psychosexual development lies in the capacity to choose a mate wisely, to woo and win this mate, to establish an adequate and satisfactory sexual and psychological marriage relationship, and to accept and rear children. Much of this is the product of growth in love capacity in its widest sense. Let us, then, trace the development of this wider aspect of love.

Infants Essentially Limited in Capacity to Love. As has been implied before, a new born baby knows little about love. People as such do not exist for him. His awareness of life consists largely of consciousness of himself, particularly of his physical self.^{666, 834} When he is well-fed, exercised, clean, and comfortable, he is content. As was shown earlier in this chapter, he gradually becomes aware of other people and learns to accept those who take care of him. In this sense he has learned to love another person than himself, and he may show his love by permitting only the favored person to wait on him and by rewarding that care with a smile or with cooing sounds. There are some adults who have not progressed beyond this stage, whose entire conception of love is to allow people to wait on them, and who have no more sense of responsibility to other people than to pay them with a smile or a physical caress.

Babies should be thus loved and thus served. We have ample evidence^{348, 486, 501, 610, 816, 834} that being loved and wanted, or being secure in the love of one's family in infancy and early childhood, is essential to adequate personality development. As has been emphasized before, the child must not only be loved, he must be disciplined as well.* Healthy babies, loved and cared for, will have

* Mahler⁶⁶⁶ (p. 47) says: "In the course of the educational process, the emotional relationship between the parents and the child must be such that the child should feel neither disappointed at not getting compensatory love, nor ought he to feel too sure of getting love irrespective of his behavior. If a child feels unloved, he will soon feel cheated, he will not find it worth while to renounce his ways of repressing objectionable wishes. He will only suppress his egoistic cravings because of physical inability to get his own way. He will not renounce his pleasurable ways of aggression, will not bestow love on other people, but will use up his entire love energy in self-love. Such a child will remain egoistic and resentful. He has no reason for altruism."

Again (on p. 53): "Educability is conditioned by a normal though not excessive fear of loss of love, and by a normal though not excessive fear of punishment. If both are excessive, a condition results that clinical psychiatry classifies in the group of primary behavior disorder of the conduct type, and that in the psychoanalytic nomenclature would be called neurotic waywardness or delinquency."

Groves⁴¹³ says (p. 142f): "In every case which comes to the attention of a psychiatrist, psychologist or social worker because of maladjustment in the field of sex, *unsatisfactory* parent-child relationships are to be found as a fundamental factor."

a sound foundation laid for adequate adult love relationships. Sickly, unwanted or neglected babies usually develop a preponderance of negative emotional feelings and thus develop cravings or resentments which color adult love relationships unfavorably.

The Scope of Love Broadens in the Preschool and Primary School Years. Children of two or three years have usually passed the stage of selfishness described above and have broadened their conception of love so that they do not demand unlimited service. They should have learned to care for some of their own needs and to perform some degree of service for some one else. They should have made a real beginning in feeling responsible to the family group, in developing ability and willingness to do everything possible in feeding themselves, in keeping their toys in order and in doing occasional errands for other members of the family. They should have broadened personal affection to include not only the mother or nurse who gives physical care but also other members of the family⁶⁴⁸ and other persons whom they meet often and who, therefore, become familiar to them. Preference is usually shown, of course, for those persons who provide the best amusement or the greatest amount of praise, as well as for those who give the greatest number of presents. One could scarcely expect a three-year-old child not to be swayed by such advantages. Tragedy may result, however, for the adult who can love only persons who minister to his physical needs, who flatter and praise constantly or who pay the highest material price in the giving of presents. Mates chosen on such a basis are seldom successful; friends chosen on such a plane are likely to be similarly limited in the conception of love, and, therefore, not very satisfactory in the long run.

In the nursery school age, as we have seen, love and conflict often occur together.^{349, 377} For example, we can see two children, both good friends yet in conflict over a tricycle. Each will be clinging to the coveted object, each crying, each puzzled at the resistance from the other, each of them clinging to the tricycle with one hand, but patting the crying friend sympathetically with the other hand. Here, each child has progressed far enough in love growth to feel concern at the unhappiness of the other; yet each is still egocentric enough to be blind to the fact that he is causing that unhappiness. Many husbands and wives, full grown in chronological years, are only this old in love development, since they live thus concerned at the unhappiness of the other, yet thus blind.

Another far more important foundation for adequate adult love relationships is being laid in the preschool age. The boy's early relationship with his mother sets deeply his later emotional reaction to women. Loved wisely by his mother, a boy can accept fully the

love of a wife in later years. Loved wisely by his father, he can develop a clear masculine pattern for his own behavior as a husband and father in adult life. So it is with a girl; in the love of her father she can accept the love of a member of the opposite sex; in the love of her mother she can develop the pattern for her own behavior as a wife and mother in adult life. Loved unwisely by his mother, the boy may either become unwholesomely attached to her in such a way that he can never step beyond his preschool dependence upon her; or, if his personality strength is enough, he may break away in spite of her. He will be lucky if he accomplishes the break without a bitterness which leaves him forever suspicious and fearful of the love of women. The analogy is the same for a girl and her father. If his love is too possessive and jealous, or if their relationship becomes too completely fulfilling for the girl so that she cannot later accept a less indulgent and pampering love from men, she will almost certainly remain unmarried or fail in marriage.

It is in the later preschool period and again in adolescence that the psychoanalytical school attributes considerable importance to the fact of the boy's attachment to his mother and the girl's attachment to her father. However, very closely associated with the period of intense preference for the opposite-sexed parent there is also a period in which the child needs to identify himself with the same-sexed parent. The little boy, for example, imitates his father at around three years, the age at which he is normally intensely attached to his mother. Ultimately, the child finds it necessary in his emotional development to incorporate both the father and the mother into his growing ego structure.⁵⁹ There has been criticism of the early psychoanalytical viewpoint about the child's preference for the parent of the opposite sex by Sears⁸⁶⁵ in a summary of certain studies of psychoanalytical concepts. Another study⁸⁹⁸ shows that between five and twelve years of age children of both sexes prefer the mother; other studies⁹⁴³ show that children a little older than this express equal preference for both parents. Although these studies are offered as proof of the error of Freud's early teaching, they are not in conflict with recent psychoanalytic teachings as outlined above.

Gesell,³⁷⁷ in a careful objective observation of many children over a long time, offers some corroboration of psychoanalytical theories. He found that the mother is usually the favored parent at three years of age and does not mention a difference in sexes of children in this regard. However at three and one-half years girls may propose to the father saying, "I love you." At four years he found that some children say they hate their fathers, especially if his being at home cuts them off from mother. Also at four he

found great pride in the mother; the child boasts about her away from home, and quotes her as an authority. At five, the mother seems to be the center of the child's world: he (or she) likes to help her, to be near her. Boys may talk of marrying mother. Relations with the father are smooth, pleasant, and undisturbed; some children will now for the first time, according to Gesell, accept ministrations by the father when the mother is ill; excursions with the father are enjoyed; the child is fond and proud of the father and may obey him better than the mother. At six years the mother is no longer the center of the child's world, though the child is very sensitive to the mother's moods, emotions, and tensions; there are contrary responses to the mother in which the child may say he loves her, then says he hates her; is unwilling to accept help which he needs from the mother; is rude and argumentative toward her. He both fears and admires the father more than the mother, obeys him better, is not rude or resistant toward him; is hurt by a cross word from him. By seven, however, the child is again in harmony with the mother, is easier for her to discipline, is proud and self-conscious about her in public, though there are still occasional strong battles of will between mother and child. At seven some children, especially boys, "worship" the father, think he is wonderful, have long confidential talks with him. Girls are more sensitive to any reprimand from the father and may be jealous of his attention to the mother. At eight, the child shows strong physical and verbal expressions of admiration and affection for the mother; tries to live up to what she expects of him; may be jealous of the mother and father when they are together. The relationship with the father is less intense, but smoother than with the mother. There are less ardent expressions of affection, and smoother obedience. By nine the child, being busy and self-centered, his relations with his mother are smoother, provided she treats him with respect for his increased maturity; this is also true of the relationship with the father if he respects the new maturity. Boys at this age sometimes enter into a new relationship with the father in which many interests are shared.

Gang Experiences Contribute. As we have seen, too, the gang teaches lessons that force consideration of others. Group loyalties gradually force a child to curb his most self-centered impulses in favor of group welfare; otherwise he is ostracized, a fate which no normally growing child can endure. Gang lessons are usually quite objective and impersonal. Faults are discussed openly; discipline is prompt and relentless. Black eyes and bloody noses are all part of the experience for boys. Coldly turned backs and cruel words serve to whip girls into line. These lessons are more

open and more cruel than the lessons which can be taught in the family where parents and older siblings are too fond of the child to thus discipline him. It is fortunate that most children have a strong urge to play with peer groups, since in many instances, if their urge were less strong they would never tolerate the cold wind of objective discipline, but would retreat to the warm bath of parental indulgence and understanding.¹⁰²⁶

Another aspect of the gang age which is of importance to psychological development is the so-called "sex antagonism" characteristic of the period. As we have seen in Chapter XIII, there is an "instinctive" ganging of interest and liking for sex separated groups at this age. The psychoanalysts refer to this as the "latency," or quiescent period in psycho-sexual development. Viewed against the rapid fixing of love attitudes in the preschool period, and, again, against the rapid development of the adolescent and early adult period, it is, indeed a latency period. The analysts use of the term "latent" does not mean, however, that sexual interest is nil at this stage, but rather that it continues to exist, though in a less obviously growing form.* People interested in coeducation in the United States are convinced that sex antagonism is not so active as to make it impossible to educate mixed groups in the elementary years. Most of our public schools assume the ability of boys and girls to work smoothly together sitting in the same room without even being separated on two sides of the room. Although the typical elementary school pattern in this country is one of mixed groups in the classroom, the rule outside on the playground is separation into separate sex groups for play. After kindergarten or primary grades the toilet rooms are separated, and, in a few large cities where a large foreign population keeps European traditions and attitudes alive, playgrounds are separated, boys and girls using separate entrances to the building and separate locker spaces in the halls. A few eastern public school systems have separate high schools for boys and girls. Many private schools, even in the United States, separate the sexes in all grades above the kindergarten or primary. Most private junior and senior high schools, and many private colleges believe that during the emotional awakening of puberty and adolescence it is imperative to keep the sexes separate in order "to get any work done." Our large public high schools and universities offer testimony for either side of the argument, depending upon the particular school and its atmosphere, and upon certain groups of young people in any school regardless of general school atmosphere.

* Interest in and curiosity about sex is common in the elementary school period. 809, 865, 931

Even when the gangs are clearly separated into own-sexed groups we find a certain clearly expressed awareness of the opposite sex throughout the latency period. A group of boys, for example, will seem to remain absorbed in baseball or football when a group of girls, or a particular girl attractive to a particular boy, goes by. The typical behavior, however, is a little louder yelling, a few "side-show" activities, definitely designed to attract the attention of the girls. Similarly, the girls switch their skirts a little more, raise voices, giggle, and give clear evidence of their "reactivity" to the boys. Teasing between the sexes is a common bug-bear of the elementary school teacher or the parent of six- to twelve-year-old children. Calling names, pulling hair, silly rhymes, putting names together on sidewalk or walls are common practices which show that sex awareness is not dead during the gang age. Some of this is a taunting of a common foe⁸³² and is used to increase the feeling of solidarity which the child gains from thus aligning himself with his own sex group. In a sense it is an extension of the dramatizations of "hunting Indians" or playing "gang busters," and represents a continuation of fighting against a half-play enemy. Some psychologists feel that this "against an enemy" play is a natural protection against a too-intimate relationship with the opposite sex before the sexual mechanism is ready for mature action. Whether this is true or not, society's pattern for thus separating the sexes at this time may be a device for clarifying masculine or feminine attitudes before the more keen sexual attraction involves the young person in more intimate intersexual relationships.

The Early Adolescent Period: Hero Worship. From twelve or fifteen years of age through the next two or three years there is, as we have seen, a time when, if the child is developing normally, he shifts from the less impersonal relationships of the gang to more intense personal relationships. Love becomes a much more emotionally personal thing. Hero worship occurs, often with such complete devotion that the child's personality undergoes important changes in the direction of imitation of the hero. If the hero, real or fictitious, is a good model, the changes are for the better. Habits of personal cleanliness, good attitudes toward work, and real progress toward preparation for vocation or profession may result from the emotional impetus afforded by the desire to emulate a hero. If the model is desirable parents would do well to curb a natural tendency to jealousy and to regard this experience as one more step in the growth process.

Much of the hero worship of this period is an attempt by the young person to grasp a concrete picture of the personality he dreams of for himself. His worship of the hero is, in many instances,

only a worship of that which he hopes for or longs for in himself. He sees in the older person of his own sex a picture which clarifies what he thinks, at least at the time, he needs to fulfill in himself. If he has been deprived of material possessions he tends to select the affluence, or the romantic love-attractiveness of a movie star. On the other hand, every adolescent feels himself deprived in some area because he lacks what the movies offer, and in that sense movie heroes and heroines are the heroes of most pubescent children. The average young person, however, soon finds a more realistic idea of what can be expected from life, and gives up any real resentment that he cannot have such extravagant riches or attention as the movies seem to promise.

Adults should guard against jumping to conclusions about what it is that the child "sees" in the hero, since what he really struggles to achieve through the hero may not be at all evident on the surface. Therefore, even when the chosen hero seems all bad to the adult, the wise adult will attempt to genuinely understand what freedom, or what adventure, or what nobility the hero represents *in the child's eyes*. This is extremely important, since we can be of no use to the young person in guiding him to a fulfillment of himself along socially acceptable lines unless we know how the world looks to him, and what he is trying to achieve in his early adolescent striving to fulfill himself as a person and as a sex member (man or woman).

The Early Adolescent Period: Intense Friendships. Another aspect of early adolescent development is the tendency toward intense friendships with other members of one's own sex. The child seems in a sense to return to the beginning of the love cycle at which his chief concern was with himself. In this instance, however, he has progressed beyond self love to the extent that he is capable of loving some one other than himself, but he chooses some one most like himself; namely, a member of his own sex. Murphy and associates say,

The meaning of intense love-friendships and crushes for adolescents is not yet entirely clear; they may reflect both the projection of the child's need for affection and the sublimation of growing emotions that in another culture might have more immediate sexual expression.⁷²³

There is some scientific evidence and a good deal of clinical opinion to the effect that crushes between adolescent girls or between adolescent boys are most characteristic of groups which have little contact with the opposite sex. However, it is thought of by most scientific writers in the field as a normal part of the psycho-sexual development which lasts a shorter or longer time

and which assumes a greater or lesser intensity depending upon the particular young person involved. Psychoanalysts and many psychiatrists are inclined to regard the crush, or homosexual aspect of psycho-sexual development, as fulfilling an important role in the child's love development.

Sullivan explains something of how this can be in the following sequence:

Around the age of eight and one-half, nine and one-half to twelve, in this culture, there comes what I once called the quiet miracle of pre-adolescence. . . .

I say 'miracle' of preadolescence because now for the first time from birth, we might say even from conception, there is a movement from what we might, after traditional usage, call egocentricity, toward a fully social state. . . .

When the satisfaction or the security of another person becomes as significant to one as is one's own satisfaction or security, then the state of love exists. So far as I know, under no other circumstances is a state of love present, regardless of the popular usage of the word. . . .

This state of affectional rapport—generically love—ordinarily occurs under restricted circumstances. In the beginning many factors must be present. Some of these may be called obvious likeness, parallel impulse, parallel physical development. These make for situations in which boys feel at ease with boys rather than with girls. This feeling of species identity or identification influences the feeling involved in the preadolescent change. The appearance of the capacity to love ordinarily first involves a member of one's own sex. The boy finds a chum who is a boy, the girl finds a chum who is a girl. . . .

As soon as one finds that all this vast autistic and somewhat validated structure to which one refers as one's mind, one's thoughts, one's personality, is really open to some comparing of notes, to some checking and counter-checking, one begins to feel human in a sense in which one has not previously felt human. One becomes more fully human in that one begins to appreciate the common humanity of people—there comes a new sympathy for the other fellow, whether he be present to the senses or mediated by rumors in the geography, or the like. In other words, the feeling of humanity is one of the aspects of the expansion of personality which comes in preadolescence.*

Crushes are particularly likely to occur in camps,¹⁰²⁵ most of which separate the sexes, and all of which separate the young people from the familiar settings, routines and particularly from the personnel of their family. Even though the adolescent is in

* Dr. Harry Stack Sullivan, Director and President of William Alanson White Psychiatric Foundation. *Psychiatry* (Journal of the Biology and the Pathology of Interpersonal Relations), No. 1, v. 3, Feb., 1940. Excerpts from Lecture II, "The Human Organism and Its Necessary Environment," p. 20.

the throes of establishing himself as a grown person, he still misses the security of familiar family routines. He is especially prone to attach himself to some family substitute, particularly if there is available a counselor or older camper who will not only serve as a family substitute but who also combines the qualities, spoken of above, which represent the child's dream of himself. Crushes in camps grow not only out of loneliness for familiar surroundings but also out of the continued intimacy of twenty-four-hour-a-day living with the other campers.

Like any other life experience, these intense friendships may, of course, result in harm to the participants. However, they may, and usually do, result in constructive growth. When the young person passes too quickly into the later adolescent or heterosexual stage he may find himself lacking an appreciation of friendship with members of his own sex. Men who pass too quickly through the friendships-with-one's-own-sex stage may, later, learn how to meet other men in business, and may find social friendships with other men because of business contacts. The usual sequence for "boy-crazy" girls, however, is early marriage and a career in homemaking. The typical life pattern of the married woman limits her activity and her energy to her home and her children in such a way that, unless she has learned early to make and keep women friends, she is likely to find herself lonely, unable to pick up club or community contacts, unable to win and hold the friends which give her married life meaning and companionship aside from her husband and children. The boy, then, who passes quickly through the homosexual into the "girl-crazy" stage may learn later, when he was settled down to one girl, how to meet men and win friends among them. The too quickly "boy-crazy" girl, however, finds it more difficult to fill the gap in her life later. More than this, the boy or girl who ties all of the newly awakened emotion of adolescence into boy-girl relationships, thus finding all of his or her companionship, sharing and fun with members of the opposite sex often finds that becoming tied down to one member is dull, monotonous, or even impossible. This is not a good background for marriage. We see, then, that valuable lessons can be learned in the intense-friendship period of development.

The Difference between a Wholesome and an Unwholesome Crush. Camp counselors and high school guidance teachers should learn to recognize the difference between an unwholesome and a wholesome crush. If the identification of the child with another member of his own sex teaches him to control his own selfish desires and impulses in favor of those of another; if the relationship widens his interests, teaches him better personal

habits, improves his personality, then the relationship is doubtless wholesome. Most young adolescents must do some stumbling and "nose-bumping" in the process of learning how to manage a close, emotional friendship. An almost universal tendency at first is to wish to possess the beloved person exclusively. There is nearly always a certain amount of "if you 'go with' anyone else you can't 'go with' me," a certain jealousy of any friend who is likely to compete. In general this tendency is unwholesome, since it tends to restrict rather than to widen the interests and the love relationships or friendships of both partners to the relationship.

Most young people have to experience this possessive relationship once or twice in order to find that it does not work as a principle upon which to build friendship. If they *do* learn this principle, then the relationship can be considered profitable. If they fail to learn it, but continue to flit from one intense, possessive friendship to another, then some constructive help must be given. Most adults, in dealing with such intense friendships, simply condemn them as "abnormal," shaming the participants, or attacking the qualities of the beloved person in an attempt to bully the young person out of the friendship. Only for spineless young people do these methods work. If the young person has any fine quality of loyalty such adult bullying only places him on the defensive and makes him protect his friend. It often compels him to rationalize qualities which do not exist but which, stated in the friend's defense, appear now to exist, thereby strengthening the love. Another result of adult bullying is to intensify the young person's determination to declare his independence of adult judgment, thus forcing him to cling to the forbidden friendship by way of proving his right to do so long after the natural sequence of events would have weakened or dissolved the tie.

One constructive approach is to help the young person to see that if he and his friend limit their activities, their friendships and their experiences to each other, the time will come when they will no longer be interesting to each other. Thus the keen edge of their enthusiasm for each other will inevitably be dulled. The best way to remain keenly interesting to each other is to do some things at least with other people, to widen activities and interests. This should mean that Betty goes on with the school paper even though her close friend Susie has no ability in that direction; Bob goes on with his model airplanes while his friend John plays football. Most young people understand this idea once it is presented to them, and are willing to "sacrifice" the time of the friend to his or her previously pursued activities in order to keep the glow of the friendship intact. Such an approach usually succeeds, and in the correction of

the intensive exclusiveness of the relationship, the more wholesome aspects of friendship often develop. When this results the young people not only learn an invaluable lesson about human relationships, viz., that one can hold love only by freeing it, but they often save a valued friendship which might, and probably would, otherwise soon wear thin.

Some clinicians judge the wholesomeness or unwholesomeness of such friendships purely on the basis of physical expressions of affection. This is an unsound basis for judgment. Some of the most possessive, restricting, unwholesome psychological relationships exist quite apart from any but superficial physical expressions. Occasionally the reverse is true, and a rather intense sexual expression may exist within the framework of a quite sound psychological relationship. On the whole, sexual possession of the friend leads to or accompanies an attempt to possess the friend psychologically. In this case there is jealousy of the friend's other interests and loyalties. In adolescent crushes, then, there is a high correlation between physical sexual expression and warping of psychological relationships. In general, but not always, the criterion of physical sexual expression as a measure of unsoundness in close friendships is a good one.

However, we must clearly differentiate between rather innocent though somewhat passionate embraces, and actual sexual activity which involves a full adult orgasm. Nearly all normally growing personalities feel a desire to express sincere, idealistic affection by some physical means. Holding hands, walking with arms about one another, even fairly intense kisses remain for most young people in the realm of expression of friendship rather than in the realm of erotic sexual excitation. An overexcited or oversuspicious adult may create by the wrong approach a sexual consciousness in the young person which does not naturally exist. It is hard for fully matured, fully experienced adults to remember that young people, at least those of average sexing, have not yet had the experience which leads casual caresses into tumescence and craving for sexual completion. Young people usually do not react to passing embraces with an arousal of the complete sexual mechanism. Highly sexed young people, of course, sometimes do so react. However, the highly sexed young person, given a normal exposure to members of the opposite sex, does not remain long in the early adolescent, or homosexual, stage of psycho-sexual development. They do not, therefore, give us much anxiety in the homosexual field.

It is true, of course, that some people develop physical practices in the homosexual stage which fix their sexual expression at this level, making sexual satisfaction improbable on the heterosexual

level. Such studies as those of Davis,³²¹ Exener,³⁰⁹ and Landis⁴⁰⁹ indicate that although intense emotional relationships are common between girls, overt homosexual physical practices are a fairly rare experience for girls, being a more common experience for young adolescent boys. This is probably because girls are more severely conditioned from childhood to avoid overt sexual experiences. Most of the literature on mature sexual functioning indicates that most boys escape from these experiences undamaged, entering adult heterosexual experiences quite normally. Unless the individual is predisposed constitutionally to the homoerotic pattern, his normal growth pattern carries him through these experiences and into normal adulthood quite unscathed.

The chief damage which comes from overt homoerotic practices seems to come from the "guilt complex" which may result from the young person's feeling of guilt in connection with the practices, or from unwise handling of a situation when discovered by adults. If the young person comes to doubt the "normality" of his masculinity the result may prove disastrous, since the seed of such doubt may grow into wrong emotional conditionings around the sexual function, thus arresting development and blocking normal adult functioning. Wisely handled, such experiences for most young people need not leave disaster in their wake. It cannot be too strongly urged here that teachers, parents and guidance people turn the handling of such aspects of psycho-sexual development over to experts specially trained to handle them.

The Later Adolescent's Progress toward Maturing. It is evident from the above that an important step in the maturing process of later adolescence is accomplished when the young person has a fairly wide experience in boy-girl relationships. Through this experience, the transition from the homosexual period takes place and a basis for adequate mate selection is laid. Young people normally pass through the homosexual into the heterosexual periods of psycho-sexual development as the biological functioning of the sexual mechanism becomes sufficiently established to induce interest in mating. The chronological age at which this occurs varies from eleven or twelve to eighteen or nineteen years for girls (about one to two years, as a rule after the menarche), and from twelve or thirteen to nineteen or twenty for boys.

A great deal of concentration upon boy-girl relationships is an accepted and desirable part of our cultural pattern for adolescent young people. Since we permit (or even force) them to choose their own mates we must make it possible for them to do enough "shopping around" to make the wisest possible choice. It is only in our modern Western culture and, very recently, in China and India

that we have permitted young people to make so serious a choice for themselves. Centuries of tradition dictated that parents knew better what was necessary for a good mate than young people could possibly know. More than this, families who knew each other, often for generations, chose knowingly. Today, we not only permit young people to make their own choices, but we permit them to do so from among young people whose families, whose backgrounds, whose early experiences and habits, whose tastes and abilities and attitudes are almost entirely unknown. Rapid changes of neighborhoods, extensive contacts in high schools and colleges made up of thousands, highly mobile means of transportation all widen the marriage market, exposing our young people to a bewildering choice which would test the wisdom of the oldest and most experienced person. For the first time in history we are asking young people to take a life responsibility with which we have never trusted them in the past.

An additional modern complication, which was acute during the ten years of the 1930 to 1940 depression, was the factor of economic independence. In earlier history, while parents made the choice of the mate, they also established the boy in business or a trade through passing the father's business to the son or apprenticing him to some trusted townsman, and they furnished most of the housekeeping necessities through the girl's dowry. In current practice, and until the recent wars, the typical pattern is "when you marry you're on your own." Even the "hope chest" of linens and silver was seldom part of the current bride's equipment. Young people, unaided by parents beyond the provision of whatever education they could afford, faced with severe economic competition, found themselves unable to meet the economic responsibilities of marriage with the result that marriage was delayed.

During the recent war the situation changed. Most young men of eighteen to twenty-five were guaranteed a living either in the armed forces or in the tremendously expanded economic machine. Heightened emotional excitement, combined with the fear that young men might go to war never to return, led to precipitant marriages or hastened marriages which were sound but would normally have been delayed.

Many families continued to provide maintenance for married daughters who continued in school or followed husbands from army camp to army camp. The government supported boys in the armed forces, giving extra stipend for wives and children. At the close of the war the boys returned, many of them to wives with whom they had had no time to establish a sound physical or psychological marriage relationship. Many returned to children

they had never seen. G. I. benefits insured a living, although at the subsistence level only, for a period. As this book goes to press, many of these marriages have broken up with the usual heartache and despair; but many are developing a sound foundation for future happiness. What lies ahead depends somewhat, at least, upon the economic future of our country and of the world.

However, with all that is involved, it is slight wonder that parents feel "frantic" about the experiences of their young people, knowing how important are the choices and the involvements of boy-girl behavior through this after-sexual-maturity-and-before-marriage period. Yet the peer-culture of these young people, the dictates of the "modern" procedure, exposes them to wide contacts with the opposite sex under conditions which take them away not only from the chaperonage of parents but, through the automobile, easily away from the deterring effect of any people who know them. The anonymity which the automobile gives current young people places upon them a heavier responsibility of self-control than has been placed upon sexually mature young people in recorded history. On the whole, they seem to be managing this responsibility extremely well.

QUESTIONS FOR CLASS STUDY

I. Observe a group of gang-age children, or recall your own childhood gang or clique. What moral judgments and ethical attitudes do you see being learned or did you learn through this period? How were these lessons effected?

II. Recall some episode of stealing in your life. What made you do it? How was it handled? What was the result for you? Do the same with some lie you told as a child.

III. Discuss what elementary schools can or should do in developing moral judgments and ethical attitudes.

IV. Recall some young adolescent whom you know well. Does he have heroes? Who are they? What effect do they have upon his behavior? If the effect is bad, what would you do if you were his parent?

V. Outline what would seem to you to be a workable plan for counseling high school students on whatever personal problems you consider to be the province of the high school.

VI. Trace your own psycho-sexual development or that of some young person you know well. Can you recognize the progressive steps by which you acquired important personal and social attitudes? What kind of sexual experiences did you have? What kind of sex education? What do you need now in attitudes and self-controls in order to complete your growth into a sound adulthood?

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15. A SUMMARY OF GROWTH ACHIEVEMENTS

The Demands of Life. When the school years are over and the young person must meet life, he will, as we said in Chapter I, have to be prepared for certain tests of his previous growth and development. He will have to be economically independent; he will have to make a social adjustment to the people with whom he works and lives and who live in his community; he will have to function as a citizen of his community and of the world; he will have to adjust to marriage or to the lack of it, and he will have to live successfully with himself and with his place in life. In other words, he will have to have an adequate life philosophy.

What It Takes. If he is to do these things successfully he must have acquired through his growth period:

1. Adequate physical health and vigor.
2. Well-formed habits of feeding, sleeping, exercising, and health protection.
3. Sufficient command of bodily skills to:
 - (a) Insure exercise enough to keep well,
 - (b) Utilize his body for efficient work and restful play,
 - (c) Encourage general self-control through bodily control.
4. A satisfactory appearance and manner.
5. A well-developed intellect, a good background of facts and ideas, and good habits of clear thinking; adequate diction and vocabulary and the ability to express himself well.
6. A progressive weaning from childish behavior and from excessive dependence upon others.
7. A widening range of interests and creative outlets.
8. Increasingly adequate social skills; ever-widening insights; tolerance and understanding; genuine consideration for others.
9. A well-balanced moral and ethical code of behavior and the ability to live up to it.

Let us review some of the steps by which this growth comes about. We shall assume a good heredity and adequate prenatal and obstetrical care.

From Birth to One Year. "A newborn baby is of no use and is the world's biggest nuisance. . . . If his training program is right he ceases to be a nuisance and becomes a joy."* Sleeping, eating, exercising are the major business of the infant, because rapid physical growth is the order of the day for him. Not only does he grow rapidly in length and weight, his internal organs also develop rapidly. About eight teeth erupt and permanent teeth begin to be laid in during the first year. Foods which differ from milk in flavor and consistency are introduced although vegetables and meats must be sieved or scraped. Spoon and cup supplement and gradually replace breast and bottle feeding, thus beginning the adjustment to new conditions as well as starting the weaning from too close attachment to the mother and to baby practices. Two naps a day remain in the schedule, as do more frequent feedings than will occur later. This rapid growth and the laying in of teeth necessitate special attention to growth-stimulating foods, activity and rest. Limited ability to fight disease requires reasonable protection from bacteria; limited ability to adapt to wide ranges of temperature make it important to guard him against temperature changes.

Helplessness is to be expected in an infant. He is not supposed to carry any responsibility, to care for himself in any capacity except to exert the effort of sucking when food is presented to his lips. Yet, within a few days of birth he has accomplished much in the realm of learning and mental growth, and within the first year he has probably learned more new things than he will learn in any other year of his life. From an undifferentiated uncontrolled mass of movements characteristic of the newborn the year-old child will have learned the postural controls and will have developed the muscular strength for standing alone and, soon to follow, for independent walking. He will have learned to see, to hear, and to touch, and will have blended these learnings into eye-ear, eye-hand, and hand-mouth coordinations. Through these he will translate much of the world about him into intelligible meaning and will have gained some useful command of the things which come within his reach. He will understand a considerable amount of language and will have begun to speak two or three meaningful words. He will have begun the making of decisions and the solving of problems which lead to more complex reasoning. He will have discovered people and already will have developed fundamental personality reactions to them. He will, in his own way, have discovered the beginning of authority, of reactions to success and to failure, the satisfaction of work to accomplish results, the pleasure of the struggle which leads to achievement.†

* From a lecture by William Blatz given at Utah State College, July, 1939.

† For further discussion see Bibliography.^{11, 278, 321, 324, 340}

Later Infancy and Early Preschool. Between one and three years of age physical growth proceeds somewhat less rapidly, though changes in bodily proportion and development in the neuromuscular system permit the rapid acquisition of balance and skill which characterizes the child who is learning to walk and run about. At three years the child has all of his deciduous teeth and is laying in many of the permanent teeth. Although he is not growing at as fast a rate as formerly, he is extremely active and his appetite is good. His food, which is no longer puréed, although it is chopped rather finely, comes to include nearly everything eaten by the family excepting highly seasoned, rich, or very coarse foods. This is an important time for extending food likes and for establishing good food habits. At this time most children join the family at meals and thus become much more a part of family life and routine. They usually require a supplementary cracker and milk or fruit juice between meals. One nap a day, usually in the afternoon, now suffices if night rest is long enough.

In mental growth the spectacular achievements of this period are in the acquisition of rapidly increasing controls over general bodily skills and hand controls, the tremendous explorations into "what, why, and what for?" about all the familiar things and events in the immediate environment. Rapid expansion of both understanding and use of language also occurs. Adequate playthings to encourage vigorous bodily play as well as to develop manual skills and to train sense perceptions are important.

Although the year-old child does not appear to be aware enough of routines to resist them, the eighteen-months-old child is likely to do so.

At eighteen months the child is a nonconformist, not because of a propensity to rebel but because his stock of perceptual differentiations and embryonic conceptions is so small and so precarious that he clings to his mental possessions as he clings to his mother or to an object in his hand. For him sudden changes are precipices. He avoids them by lying down, by backing away, by running off to hide, by screaming, struggling or beating the air.³⁷⁵

This, added to the other aspects of developing personal aggressiveness and confused sense perceptions and judgments produces the negativism or temper tantrums which characterize this period. If routines are more rigorously imposed than the child's readiness can adjust to, food strikes are a frequent manifestation of this negativism, as is also resistance to toilet procedures. Learning to control this resistance or temper is one of the most important accomplishments of this period since it represents real beginnings in self-control and cooperation with others.

Even though he resists routines and changes, the two- and three-year-old child is advancing rapidly in his understanding of and cooperation with health habits and in his conformance with the domestic conventions of dressing, bathing, eating, etc. Control of elimination should move toward perfection during these years.

It is, too, a period of rapidly expanding awareness of other people as separate from oneself. However, the child of this age animates inanimate objects and carries on long conversations with himself as if one of him were talking to another, and thus gives evidence that separation of self from others is still not complete. He has imaginary companions from three years on, and in other ways around three years seems to carry other personalities around within himself as not quite separate from himself. His interests widen beyond himself and his immediate toys and his affection spreads from his mother to include other members of his immediate family.

The Later Preschool and Kindergarten Period. Between three and five or six years the child's physical growth rate is slower than at any time between infancy and puberty. The knock knees and protruding abdomen which characterize many younger children now tend to disappear. Appetite slackens a little; the child eats regular meals with the family, needing only to have his meat cut to bite size and his bread spread with butter. He will usually still need midmorning and midafternoon supplementary food. He should continue an afternoon rest even though he may not sleep. Toilet control should become complete during these years.

All motor skills progress rapidly toward perfection during this period. Self care activities like feeding, dressing and undressing, care at the toilet, washing, and picking up toys progress as a by-product of the improved physical skills and as a definite beginning in the business of carrying one's own load in life. Cutting, pasting, "drawing," and "painting," block building and other creative activities are begun. Interest in hearing and in telling stories develops. Accuracy in sense judgments approaches perfection; appreciation of the meaning of numbers is begun, and some accuracy in the understanding of the shorter time units is developed. Eagerness to meet new things and new experiences is in full swing and leads to rapid expansion of factual knowledge and of language. Reasoning and problem solving become more adequate in direct proportion to the opportunity the child has to reason and to solve the simple problems of his daily living.

The child is now conscious of how he looks and is unhappy if he is conspicuously different from other children. He gives many evidences of conforming to social demands, and is willing or even eager to run simple errands, to help with drying the silverware,

dusting or setting the family table. He constantly asks, "Is this the right way?", "Am I doing it right?". His eagerness to please and to follow the "right way" is so constant that a marked persistence of behavior problems at this age is suggestive of faulty functioning in some area of his growth.

Contacts with people, especially with other children, should widen during this period so that elementary lessons of give and take may be learned as a preparation for the social adjustments which school will require. Weaning from too great dependence upon the mother or other members of the family should be well under way. In meeting other children we can know that his behavior is immature for his age if he creates disorder, interferes with the work or play of other children, leads them into mischief, frequently pushes or pulls them, complains of them to adults for his own gain, avoids friendly advances from other children, or in other ways shows a concentration of interest upon his own wishes and impulses. It is at this age that beginnings of cooperative behavior should be made. Adults can help the child to get along with others with a minimum of conflict, to substitute verbal methods for fighting and snatching, not to be a crybaby when hurt or crossed but rather to develop courage in the face of pain or disappointment.

In less privileged economic groups, children of this age or even younger have frequently made adjustments of self-care, ease and familiarity with a wider variety of adults, and even the care of younger children. Such children can often make change up to a dollar, can drive a rather sharp exchange bargain, and are sometimes almost entirely responsible for household affairs while parents are absent at work. Whether the child is economically privileged or underprivileged the preschool period sets certain attitudes and emotional habits, especially those which concern home standards, so that they are fixed, or only slightly modified, thereafter.*

The Childhood or Early Elementary School Period. The childhood cycle, which closely approximates the elementary school age, begins with the appearance of the sixth-year molars and lasts until the onset of pubescence. This is ordinarily from five or six to ten or eleven years of age.

During this age the child consolidates his previous learnings, and carries forward earlier growth accomplishments. Slow, steady physical growth is the rule. Many underlying changes preliminary to pubescence take place, but spectacular adjustments do not command the attention of the adults as they did earlier and will again in pubescence.

This age is no time, however, to relax on health supervision of

* For further discussion see Bibliography.^{321, 377, 378, 4}

children. The need for careful protection of health and for recognition and correction, in so far as possible, of physical defects in the early elementary years is indicated.^{211, 472} In a study of the physical status of a group of army selectees examined and disqualified for military service, Ciocco and associates²¹¹ found that the great majority of the men who were disqualified because of eye, ear, or dental defects had shown some indication of these defects in their early elementary years. Of those rejected many were in their early years below par physically as indicated by underweight, fair or poor nutrition or posture. Good health care during the early school years should be good insurance for the future. Children between five and nine years may be expected to have more illness, which interferes with normal activity and which thereby necessitates absence from school, than preschool children or those between ten and fourteen years.* However, they usually recover promptly. Most of the illnesses are due to acute communicable or respiratory diseases.

The early elementary school period is one in which children are more "on their own" in physical routines, and one in which correct food, rest, and elimination habits should be functioning without close adult supervision. Not only should good habits of physical hygiene be developed, but children should also learn the reasons for these habits. By the end of the elementary school period the child should not only be efficient in self-care; he should also be able to follow simple precautions against colds, and against spreading infectious diseases recklessly; when ill he should be accustomed to following orders of a physician without bribery by his parents; he should be aware of any shortcomings of his body and reasonably responsible for doing something to meet them, e. g., not running if the defect is a bad heart, not eating sugar if it is diabetes.

Entrance to school tests the adequacy of the previous physical as well as psychological development,† since it demands physical strength, a reasonable resistance to colds and other diseases, the ability to leave home and mother, the ability to concentrate for at least short periods of time, adjustment to an authority other than

* From a survey of the United States Public Health Service during the winter of 1935-1936 and reported by Holland.⁴⁷²

† In a study of 734 children entering school, 15 to 18 per cent of the five year olds and 24 to 30 per cent of the six year olds suffered one or more handicaps which would interfere in some way with school progress. Among personality traits which would handicap a child in school were: lacking in adjustment to new situations, lacking in initiative and self-confidence, dependency upon adults, tendency to be shy and sensitive, undependable and lazy; lacking in will power and persistence, not willing to face a situation, tendency to be willful. One in every eight children was handicapped intellectually; one in every nine suffered from language difficulties.⁸²⁶

the parents, a capacity to be with other children without fear on the one hand or intoxication on the other. It requires reliability in toilet habits, independence in dressing (at least for outer garments), ability to understand and to speak language, sufficiently developed sense perceptions to warrant success in school subjects.

School is the child's business—his job. The attitudes he takes to this job will determine much of his early success or failure with it. The attitudes he learns from it will be of great importance to his attitudes toward work, toward responsibility, toward himself, and toward life in general in later years.

Upon entrance to school, and in participation in gang activities many children for the first time meet standards of moral and ethical behavior which differ from those of the parental home. Some of these are good and serve to widen the child's horizon of acceptable behavior, and hence his tolerance. Some are bad and he must develop an immunity to these as he does to new germs he meets at this time.

Boys, particularly, resent nagging and oversupervision, even though dependence upon the home is still great during this age. Food and shelter are rarely obtained away from home; the security and sweetness of parental protection and love is still very attractive—the boisterous boy still likes to be tucked into bed at night with a bedtime story, and often with his favorite doll or toy animal. However, increasing independence from adults is not only desirable, but imperative, since the child of this age who associates with adults to the exclusion of peers becomes dependent, shy with children, and too amenable to adult and child authority. Deprived of adequate opportunity to learn adjustment to peers he may even become whiny, sulky, and subject to inferiority feelings.

Particularly evident during the elementary school years is the abundance of energy which makes "roughnecks" of these children. Their movements are vigorous, their voices loud. For boys there is great emphasis upon "being a regular guy"; shirts are hanging out, sox rumpled, and hair is mussed as evidences that one is not a "sissy." One understanding mother who had an older son said of her younger nine year old: "Now you can't get him in the bathroom. Wait five or six years and you won't be able to get him out of it." Both girls and boys fight as they develop an aggressiveness which seems at a premium in our American conception of "looking out for oneself." They have a great need for activity, both physical and mental. Control over the body proceeds rapidly as the child practices physical skills by the hour. Control over the mind is also challenging, and most children enjoy the feeling of having learned new and difficult things. Reading, writing, arithmetic, playing of

games, controlling of muscles, learning to get on with peers is the preoccupation of the early elementary school child. Children of this age show an eagerness to extend horizons intellectually as well as physically. They are alert to learn about everything near themselves, and are willing to be carried into a grasp of world affairs. They love to dramatize the history of the Pilgrims, of Indians, of the Civil War, and to celebrate Washington's Birthday. They can work for months on a transportation project, and love to visit the creamery or other sources of food and everyday things. In a real way this is simply an extension of the constant what-where-why curiosity of the preschool child.

This is a desirable time to utilize the alertness and eagerness of the child for the development of hobbies and interests which will serve to enrich his life in later as well as in the present years. Interest in woodwork, in collecting, in arts and crafts, and dramatics can be stimulated easily. In fact, the years from nine to twelve are the ones of greatest range of play and hobby activities and interests. Objective criticism and a sense of responsibility can be developed because of this eager interest in work.

The child's natural desire to learn is perhaps the reason we exact so much learning from our early elementary school children.

We expect the child from five to eleven to learn, apart from the school curriculum, more about the social customs of our world than at any other age. We expect him to learn the principles of honesty, private property, courtesy, thoughtfulness, tidiness, cleanliness, and others.*

Standards in these things are often set by the adult at a higher level for the child than the adult expects of himself or maintains. The development of conscience and of moral standards moves forward rapidly. This emphasis upon standards by adults sometimes combines with the child's natural urge to do the right thing and produces a heavy emotional burden for the child. Some children become overconscientious, and are weighed down with a sense of futility and failure. In spite of all of these demands, however, most children adapt well to the increasing need to adjust themselves to the world about them.

In spite of this desire to learn, however, the boisterousness, noise and clumsy haste of these children make fifth- to seventh-graders the hardest groups in the school to keep in some order and to move forward in a smooth academic sequence. This is a time, fortunately, when the gang impulse is strong, and group solidarity can be used to move a class in a group even though individual competitiveness

* From a lecture by Dr. William Blatz, given at Utah State College, July, 1939.

also characterizes this age. Although the gang interest helps the teacher in providing a sense of solidarity it places another handicap on school work in addition to its encouragement of boisterousness. It fosters the naturally silly behavior which characterizes this age. Poking, tripping, practical jokes for boys, incessant giggling for girls can try the teacher's or the parent's patience to the breaking point.

Aside from the mistakes with property rights discussed under stealing in Chapter XIV, and those with truth-telling discussed in Chapters X and XIV, there are two types of behavior problems which characterize this age. Teachers and parents are aware of the one type, namely, aggressive boisterousness and silliness, inattention, carelessness, disorder, disobedience and disrespect, truancy, and failure in school. The clinician is aware of the other type, namely, shyness, daydreaming, passive failure to cooperate, nervousness and hurt feelings, fears, and other retreats from activity. These are all symptoms of incomplete learnings, of schedules which provide too little activity or demand too much, of school courses which bore children or which produce tension and anxiety, of emotional instability or physical inadequacy or discomfort, lack of emotional security either present or past, or some other situation which is not conducive to normal growth.*

The Junior and Senior High School Age. The outstanding phenomenon of these years is the onset of pubescence with the rapid biological maturation of the body and the changes in social and personal interests which accompany this. The rapid physical growth of early pubescence places great demands upon the child. This is a period of accentuated physical differences between early and late maturers. It is also a "time of physiological learning,"⁸⁹¹ a time when bodily functions are becoming stabilized. These facts should be taken into consideration in planning physical and psychological programs for young people of this age.

Complete adult height is achieved during the pubescent and postpubescent years, and the eruption of permanent teeth is completed except for the wisdom teeth. The pubescent child's appetite is either voracious or he becomes "picky" about food and he is likely to begin a habit of between-meals munching which may lead into a bad cycle. Candy bars after school dull the appetite for dinner. By bedtime another snack, combined with a later bed hour than should be allowed in a period of such rapid growth, results in heavy fatigue in the morning and no appetite for breakfast. Soda fountain snacks, an ill-chosen lunch at the school cafeteria and further snacks after school may set up a cycle in which

* For further discussion see Bibliography.^{877, 882, 940, 981}

the child gets a preponderance of sweets with too little substantial growth-promoting foods. Health habits during this period should receive careful attention both at home and at school, since even the most carefully trained child may appear to forget all he knows about self-care at this time.

Early adolescence is ordinarily a period of good health. However, the adolescent who develops poor health practices may find that rapid growth, combined with rapidly increased school and social demands, may make him a prey to tuberculosis. That this happens fairly often is indicated by the relatively high incidence of tuberculosis among adolescents. Periodic health examinations are important now, as they were during the earlier years of childhood. Not only is it necessary to watch carefully for evidences of inadequate food and rest, and of too great academic and social strains; it is also excellent preventive mental hygiene to help young people to understand and adjust to the growth phenomena peculiar to this period. Appearance of secondary sexual characteristics are often a source of anxiety and conflict. The question, "Am I normal?" occupies far more of the early adolescent's attention and emotional energy than is generally supposed.^{575, 740, 1085} Acne causes self-consciousness and may emphasize a young person's natural shyness and tendency to withdraw from social participation. Changes in the vasomotor system often make blushing a source of self-consciousness and anxiety. These psychological as well as physical situations in young adolescents should receive attention from physicians and guidance personnel at regular intervals. The imperative necessity for adequate sex education is, of course, obvious.

Intellectually, the adolescent experiences a steady widening and deepening of capacity to think and reason. If home and school offer adequate stimulation there is a growing sense of current events and world affairs. There is a dawning awareness of the fact that soon he must not only know about the world but will also be required to meet life as an independent adult. Although schoolwork often suffers because of the young person's concentration on his social and personal problems, there is frequently a sense of being born intellectually. New ideas become fascinating; the unending scope of the "not-yet-known" stretches out ahead and urges the student into eager pursuit of knowledge. Children who have been indifferent to schoolwork sometimes become seriously devoted to the exploration of new academic fields. Occasionally, of course, this newly acquired student attitude is merely a cover up for a feeling of failure in social contacts.

In our culture adolescents are expected to achieve at least three

major steps in growth. (1) They must complete the weaning from dependence upon parental authority and protection and learn to think and act as mature, rational adults. (2) They must effect the transition from gang interests to adequate heterosexual adjustment. In most lives this eventuates in marriage and establishment of families. (3) They must adjust to their own capacities and limitations; they must learn to accept and use their capacities, to accept, or whenever possible to change, their liabilities. They must take over the responsibility for making themselves the best possible and the most useful possible persons without at the same time losing their sense of proportion about the size or importance of any single individual in the scheme of ultimate existence.

The young adolescent usually senses all of these obligations at least vaguely. He longs for freedom from adult authority, yet he dreads the responsibilities of adult living. He looks forward eagerly at one moment, yet he looks back longingly to the security and freedom of childhood at another moment. This explains some of his inconsistencies, since he is clean and "prinked up" to a point of silliness one day, but slovenly and dirty the next. He works feverishly for a time, then relapses into childhood's comfortable laziness. He is businesslike and dependable, cooperative and eager, one time, yet rude, uncooperative and defiant the next. He gives every evidence of his ambivalent feelings about growing up, and he shows clearly his state of confusion about his changing feelings, his temporary organic incoordination and instability, his eagerness to measure up to adult expectations, his conflicting fear that he may not do so, and his contrary inner need to defy authority.*

Adjustment to the newly intensified sex feelings which follow soon after the appearance of secondary sexual characteristics absorbs much energy and thought, often competing strongly with schoolwork. How well the young person adjusts to moods, distractions and temptations will, of course, depend upon his previous habits of self-control, of responsibility, of consideration for others,

* "During childhood it is customary for parents to demand unquestioning obedience and conformity to their requirements. . . . Then almost suddenly, during adolescence, boys and girls are expected to assume responsibility for their conduct and to exhibit an increasing amount of independence and good judgment. The transition from the submissive, unquestioning obedience of childhood to these new responsibilities for conduct presents a difficult and often bewildering problem to many adolescents. These difficulties are enhanced and loaded with emotional conflict when the parents oppose these efforts of their sons and daughters to grow up and resist their every attempt to become independent and self-governing. The adolescent's struggle to escape family ties or domination is usually accompanied by an acute need for their reassurance and support which is rarely declared but is evidenced in many indirect forms of dependence."²²⁸

and of seeing the future consequences of present behavior. However, glandular changes, rapid physical development, sharpened social awareness, and Society's emphasis upon popularity with the opposite sex may provide a situation which outweighs even good previous training. Self-consciousness, shyness, feelings of insecurity which were dormant but never previously evident may be thrown into action, with the result that previously felt inadequacies are sharpened and a confused inability to understand and control the newly strengthened sex impulse produces uncontrolled and socially undesirable behavior. The young person may, at least in the early stages of adolescence, display an inability to measure up to the many new and exacting demands which parents, schoolwork, and Society lay upon him. Conflicts and confusions which were present in earlier childhood are often revived in adolescence. All of his previous physical and psychological strengths and weaknesses, habits, skills and attitudes are likely to be called into action. If previous training has not been good disastrous behavior is more likely to result. However, good school training may combine with a basically sound constitution in the young person to avoid trouble even when previous habits and outlooks have been faulty. Last-minute gestures in the direction of control by parents seldom produce anything but sharpened antagonism and exaggerated defiance.

In our demand that the adolescent display adult judgments and responsibility we should recall that in our particular culture we keep young people in school, unmarried, and economically dependent upon their parents for some years after they are physically ready to reproduce the species. The situation was different in primitive cultures and, until the present generation, in oriental cultures, and even in our own culture until the past two generations. Young people, even before adolescence, were apprenticed to a trade so that they were established in lifework early. This, plus a tradition of generous dowries, made early marriage not only possible, but the custom. Young people grew up together, families knew each other well; parents either gave advice about mate selection or chose the mate outright. Choice of mate was not the "shot in the dark" that it so often is today. There are still a few sociological cultures in the world in which parents or tradition determine lifework and launch the young person in it early, in which codes of social behavior are fixed and require no special judgment, in which mate selection is done for one and marriage follows or even precedes biological maturity. In these cultures confusion for the young person is at a minimum, and the problem of adolescence consists mainly of curbing individual desires in favor of an acceptance of whatever destiny is selected for one.

Our young people have a tradition of free occupational choice among bewildering possibilities. We have the tradition, and in a genuine sense the reality, of free choice of mate. This frequently takes place under conditions where mate possibilities are new acquaintances, and their families and backgrounds are unknown. Any advice from parents or oldsters is likely to be regarded as interference. This throws a heavy burden of wisdom of choice upon the young person. His problem is complicated by the economic and educational necessity for delay of marriage for several years after the sex urge is mature and ready for function. This leaves our adolescents with the important problems of vocational choice and mate selection, while at the same time they are economically dependent upon their parents, thus necessitating submission to parental authority with consequent delay in decision-making. We ask more important decisions and controls than ever before, yet we keep young people economically dependent and forced to comply with parental authority longer.

Our high divorce rate testifies to the number of mistakes that are made in mate selection. High labor turnover among young people who go to work early, and delay in decision about professional choice for those who can afford professional training testify to the difficulty of making adequate vocational choices. Our high rate of neuroses and psychoses testifies to the difficulty of acquiring balanced and satisfactory personal philosophies. Yet, the great majority of young people live through a fairly smooth adolescence, make fairly wise vocational and mate choices, and in due time develop a fairly workable philosophy of life.

Professional workers with children and their families must continue to learn as much as possible about how to promote desirable growth. Research is accumulating rapidly enough that an alert guidance worker cannot afford to lean on past knowledge any more than physicians can afford not to keep up with medical advances. School personnel have a particular obligation to practice the best that is known since they are the one group who join public health officials in reaching all of the children in any given community.*

CASE STUDIES

The following case studies, one of a preadolescent boy, the other of an adolescent girl, may serve to make concrete our review of growth. Each is a typical, normal child whose good adjustment in the present stage of growth is the natural product of good inheritance, a good family who were interested in his development,

* For further discussion see Landis,⁶¹⁰ *Adolescence*⁷⁴⁰ (43rd Yearbook N.S.S.E.).

and satisfactory growth in infancy and early childhood. Each had occasional difficulties of adjustment, but a sound attitude toward these on the part of parents and teachers brought the child through each incident to satisfactory readjustment. Each child has been at average in some phases of growth and different from the average in other phases. Each, in other words, has had his ups and downs but each has grown on the whole very satisfactorily.

CASE STUDY—A PREADOLESCENT

Ted at ten and one-half years can be considered a typical preadolescent. He is full of energy, which he uses in all kinds of muscular activities, and which sometimes gets him into conflict with adults because of his exuberant spirits and boisterousness. He scorns girls and considers cleaning up at mealtime a nuisance.

Ted is the youngest of a family of three children, a child of the depression period. He was born at a time when his father, a professional man, was having financial difficulties and the family was forced to live on a marginal level. In order to supplement the family income Ted's mother went back to teaching as soon as he entered nursery school.

Ted has always been well, except for an occasional children's disease and colds. He has grown in height and weight at a rate similar to that of most boys. His bone growth, however, has been slower than that of most children of his age which indicates that he is "growing" faster than he is "growing up" as measured by the maturation of bone. While there has been no measure of his muscle development, in light of his motor ability his muscle development could be considered good. He has always been skillful in the use of his large and small muscles, and at present he is adept at ping pong and dodge ball, and can manipulate a jig saw admirably. Like many preadolescents he uses these skills to attract attention to himself.

Ted's physical habits have been fairly good. His appetite has been excellent and he has learned to like a fairly wide variety of foods. In his preschool years he expressed his dislikes freely. At ten and one-half years he still carries a little "hangover" from earlier food attitudes since, although he says he likes a food, he nevertheless gives innumerable excuses for not eating it. Fundamentally he still has some food dislikes, but has become more skillful in covering them up.

Ted has developed mentally more rapidly than he has physically. He has consistently ranked as superior with especially good ability in reasoning and memory. His progress in school has been somewhat uneven, not because of limited capacity but because of periods of lack of application. Those periods have been part of a total picture of unruly behavior which resulted from faulty discipline. During his preschool and early school years Ted missed his mother's companionship and close guidance. Out of school hours he was under the care of a series of maids and his behavior got out of hand because of the lack of consistent and firm yet understanding guidance.

Ted, when he applies himself to a task, has always been a good, enthusiastic worker. He will work, for example, a long time with the jig saw and do a good job of which he is justly proud to the point of being boastful. Occasionally when he is unsuccessful he makes excuses, but for the most part he is a very good sport about failure. Ted is primarily interested in physical activities. Swimming time in school is his favorite school period. The academic subjects such as reading and arithmetic are less appealing to him. They are something to hurry through in order to pass on to the more intriguing things of life.

His behavior in nursery school as well as in elementary school showed that he could be an "angel" or a distinct nuisance. When situations and surroundings were new and strange, as for example at the beginning of his nursery school experience and again during the early months of elementary school, Ted was the "model" boy, cooperating and being a quiet member of the group. When he began to feel at home he cast aside all inhibitions and became obstreperous. He behaved in this way because he was fundamentally shy. However, he has always had a great urge to be accepted by peers, hence "loses his head" once his shyness has worn off.

About two years ago, after much forbearance on the part of his family, his brother and sister assumed the responsibility of helping Ted to grow up in his behavior. Earlier these two siblings, who were eleven and nine years older respectively, were no help to him. In fact, they made only two more older people to nag him and create confusion in his discipline. As Ted approached eight years of age, however, his hero worship of these older siblings led them to take an interest in him. They were unusually fine young people and their influence soon became a real force in shaping Ted's behavior into more satisfactory patterns. At about this time the financial condition of the family improved with consequent release of emotional tensions.

The family during all of Ted's life has lived in a good residential neighborhood but unfortunately the children nearby have been either younger or older than Ted. Thus he has had little opportunity to practice social skills with peers outside of school. Even in school his progress has been slow due to his undisciplined behavior and he has been in trouble frequently with both children and teachers. It is not surprising, therefore, that Ted is still a little slow in making friends and in becoming one of a group. He continues to carry a pattern of approach to social groups similar to the one he showed upon entrance to nursery school, kindergarten and the first grade. When he enters a new social group he becomes a quiet observer for a time. As he begins to feel at home he becomes more and more active and tries to tell the other children what to do. His overtures are not always successful and when the other children calmly ignore his efforts he becomes more and more boisterous. His wealth of ideas and his ready wit make it possible for him to get the attention of others by arousing their curiosity and to become a ringleader in practical jokes such as putting salt and pepper in somebody else's milk. Whether his many ideas and abounding energy are used in constructive activities depends to a great extent upon skillful guidance by the adults present.

Thus we see that Ted is a healthy, attractive, somewhat shy boy with a winsome smile and many fine qualities although he is often in difficulty with both peers and adults. In spite of this he quickly wins popularity among adults with his ready smile, his wit and humor, his intelligence and his ability to converse easily. With boys (he has no interest in girls) his popularity is won more slowly, but his skills and his wealth of ideas are in time an opening wedge into the gang. He has much to learn but is progressing rapidly. He is acquiring technics that will help him to get along with people; he is learning when to be serious and when to be silly; he is gradually learning that others have rights and privileges; that a boy can be neat at mealtime without being considered a sissy. He is accumulating habits and attitudes, values and standards which will be very useful to him later in adolescence and maturity.

CASE STUDY—AN ADOLESCENT

Jane at eighteen is an attractive, intelligent girl who knows where she wants to go and is determined to get there. It is hard to believe that at three she was the shy, insecure child who came with her twin to nursery school. These two children had a difficult start in life. Both parents having died, the children had lived in five different boarding homes before they became a part of a family that gave them love and security. In this new environment Jane soon lost her apprehensiveness and settled down to growing. She has been a robust child from her early years. With the exception of an appendectomy and pneumonia during her adolescence, she has had nothing more serious than an occasional cold to interfere with her physical growth. In addition to what appears to be a sound physical constitution she has had good habits of eating and sleeping which were established by her foster family at an early age. Jane fortunately was the kind of child who took to regularity easily. A habit was quickly set and easily became a permanent part of her life. A good appetite, a good family diet and fine parental attitudes combined to give her an interest in food and a liking for a wide variety of foods. Her few dislikes have persisted from the preschool years. Consistency and texture of foods have been more important to her than flavors. Even at eighteen she still leaves the crusts of bread because she dislikes the "feel" of them.

Jane has been a fast grower. She has been tall for her age with broad shoulders and a good physique. At eighteen she is 5 feet 9½ inches. At times she may have longed to be petite for she has always tended to like little girls. During adolescence, like most girls, she has wanted to be slim. She has watched her weight carefully and has refused to eat certain foods she liked in an attempt to lose weight. During her early school years she had had some trouble with her teeth and later upon hearing that "cokes" and candy were bad for teeth she stoically gave them up. This was only one evidence of her strong determination.

She has a fine intelligence and has always made excellent progress in school. Entrance to school presented no difficulty to Jane. Even as early as school entrance she could care for herself and her twin as well. By the time the girls had reached the sixth grade they were sent to separate

schools for two years because Jane tended to dominate her sister who needed to learn to be on her own. While in intermediate school Jane was put on hall duty. This was unfortunate because it accentuated her desire to be the center of attention. The natural interest in self which all children have was stronger in Jane than in many others. Some of her peers helped her none too gently to become aware of this trait and an understanding counselor soon sensed the situation and promoted her to another duty in which she was less conspicuous.

Her scholastic achievement was consistently high and finally she was graduated from high school in the top 5 per cent of her class of 500 boys and girls. Her intellectual interests have been broad. She reads the *National Geographic* and *Reader's Digest* regularly. In high school she attended a club in which international affairs were discussed and was on the staff of the school paper for which she did much of the art work. She has been especially interested in design and looks forward to making that her profession.

During the summer before entering college she worked in a department store where her alertness, independence, and perseverance won her the admiration of her employer and an offer for work during the Christmas holidays. She saved enough from her earnings to buy all her clothes for college. Spending her money wisely was nothing new for Jane. She had long been a good manager for her wise and understanding family had given her previous experience in selecting her own clothes. While Jane had never been given a set allowance, nor was she "on a budget," she had learned the value of money and had acquired the ability to buy wisely by living in a family where value had been learned through living.

While Jane was the dominant twin, her sister made friends more easily. From early childhood she had the frequent experience of seeing her sister chosen while she was left behind. In spite of this Jane has always been devoted to her sister and has never been jealous when she was not included. She has always been eager to have friends, has great interest in knowing people and learning all about them and is inclined to champion the underdog. When the interest in boys developed in adolescence she became wholeheartedly absorbed and for a time devoted all of her energies to this new interest. However, she has never been as popular with the boys as her sister, probably because of her critical attitude toward the boys she dates and her appalling bluntness. She is learning, however, to be tactful and to keep her critical comments to herself. Characteristic of most adolescents, Jane desires above everything else to be one of a group. To be left out is a bitter experience. She also has the fear, common to many young people, that she may not marry. To her marriage is the most important goal to be achieved.

Jane at eighteen is a charming girl who still is interested primarily in herself, but who has a staunch loyalty and affection for her family. She is extremely curious about people and things, has a particular interest which will lead to a vocation, has achieved considerable independence and has an inner drive that will carry her over many an obstacle. She is well on her way to meeting the tests of life demanded of a mature person. She was

indeed fortunate to grow up in a family with a sound philosophy of life, where the children had the security of understanding and love combined with sound discipline and ample opportunity to "try their wings."

QUESTIONS FOR CLASS STUDY

I. Observe the same child whom you observed in Chapter I. In the light of what you now know, get relevant history and background as a basis for determining his physical, mental, and emotional status. Make suggestions for adapting his school and outside-of-school programs to meet his needs.

II. Write a biographical sketch of some young adult whom you know well. Trace patterns of growth and the influences which molded them.

III. Make specific suggestions for changes in schedule, curriculum and methods of teaching which would make it possible to utilize better our present knowledge of child development in:

- (a) Kindergarten and early elementary grades.
- (b) Upper elementary or intermediate grades.
- (c) High schools.

IV. Go through this book and review the particular contributions of the home to the growth and well-being of children.

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